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UNIVERSITY OF MASSACHUSETTS BULLETIN

SUMMER SESSION
AMHERST 1971

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JUN 11 1971
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN



THE COVER: Heat sensors in the nose of a six-foot reticulate python are demonstrated to graduate students Dennis Dwyer and Janice Burke by David J. Klingener, associate professor of zoology. The snake was raised in the Zoology Department lab. The 15-year-old Ph.D. program in zoology at the University of Massachusetts was among 17 such programs at this institution awarded the highest nation-wide rating in the 1971 survey of the American Council on Education.

The University reserves, for itself and its departments, the right to change its announcements or regulations whenever such action is deemed appropriate or necessary.

It is the policy of the University of Massachusetts that any and all acceptance of students for admission be without regard to race, color, or national origin.

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Summer Session 1971
University of Massachusetts
at Amherst

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Summer Session 1971 Calendar

Main Eight-Week Session

Registration Day: June 28
Classes begin: June 29
Final day for adding courses: July 2
Final day for dropping courses without penalty:
July 8
Classes end: August 20

Special Freshman Program

(See pages 9 and 10)
Registration day: June 28
Classes begin: June 29
Final day for adding courses: July 5
Final day for dropping courses without penalty:
July 24
Classes end: August 20

Daily Schedule

60-Minute Period

- A 7:45 a.m.
- B 9:00 a.m.
- C 10:15 a.m.
- D 11:30 a.m.
- E 1:00 p.m.
- F 2:15 p.m.
- G 3:30 p.m.

The letter code designates 60-minute class periods. All courses meet every day, Monday through Friday, unless otherwise specified. Courses which meet at special times are appropriately described. Special Freshman Program courses begin June 29 and end August 20, 1971.

Two numbers preceding a course title designate a course offered for either undergraduate or graduate credit.



All courses are for three credits unless otherwise indicated.

Courses or labs which may be elected at more than one time are designated: A; B; C; etc. Courses meeting for longer than one period are described by hyphenating the first and last period during which the course meets, e.g., A-C; D-F; etc.

Final examinations will be given during regular class time. At the option of the instructor, they may take two class periods.

Special Sessions — Departments of Anthropology, Education, Engineering, English, Food Science, Home Economics, Nursing, Physics and Speech offer certain courses and programs at dates other than the main eight-week term. These dates are given under the course description and/or under the section on Special Programs.

The University of Massachusetts

Amherst • Boston • Worcester



Founded in 1863, the University of Massachusetts is one of 66 land grant colleges and universities in the United States providing public education, research, and service. The University campus at Amherst, situated on 1,100 acres in the picturesque Connecticut River Valley, enrolls 20,000 students and is served by a \$160-million physical plant. The University has continually expanded to meet the growing needs of the Commonwealth. The University of Massachusetts at Boston, opened to 1,000 freshmen in 1965, and currently enrolls approximately 4,000 students. The new University Medical School at Worcester opened in the fall of 1970, and plans are presently being developed for the establishment in Amherst of a Law School.

At Amherst, a broad and continuous program is provided by the undergraduate schools and colleges, the Graduate School, the Summer Session, and the

Division of Continuing Education. Basic units are the College of Agriculture, the College of Arts and Sciences, the Schools of Business Administration, Education, Engineering, Home Economics, Nursing, and Physical Education, and the Department of Public Health. The University also has voluntary Army and Air Force ROTC programs, an active Phi Beta Kappa chapter, and more than 400 student organizations. Numerous centers and bureaus actively serve the Commonwealth in such fields as government research, labor relations, natural resources, and population.

The University has joined Smith, Amherst, Hampshire and Mount Holyoke Colleges in a five-college cooperative program, developing specific Ph.D. programs as well as operating a radio station and offering lectures, special courses, and inter-library loans.

General Information

Application Procedure

Pre-registration may be accomplished by submitting application and registration forms to the Admissions Office, Whitmore Administration Building, for undergraduates, and to the Graduate School, Munson Hall, for graduate students, prior to June 10. Course registrations and schedules will be arranged for persons applying by this date. Applications received later than this date will not be processed, but returned to the student. In such cases no scheduling will be done in advance, no bill or housing assignment will be made until Registration Day, and the student may find certain courses closed because of capacity enrollment. Course registration and scheduling will be handled on a "first-come, first-served" basis. Although every effort is made to accommodate scheduling requests, *the University cannot guarantee enrollment in a particular course section.* Early application will help to ensure a preferred schedule, and will enable registration to proceed in a minimum of time.

Students whose applications have been processed must still appear on Registration Day to obtain their schedules and to sign the Certificate of Registration Form. Applications for students who do not appear will be cancelled after the late registration period.

Application forms are included in this Bulletin, and may also be obtained from the Registrar's Office, 213 Whitmore Administration Building, or from the Graduate School, Munson Hall, University of Massachusetts, Amherst, Massachusetts 01002.

Any student who holds a degree must apply through the Graduate School whether he is taking courses for credit or not, even though he is applying for undergraduate courses. Acceptance to the University Summer Session is not an acceptance to the University for any regular session (other than for "Swingshift Freshmen").

Registration

Registration for both the main eight-week session and the Special Freshman Program will be held on June 28 in Boyden Gymnasium. Students may register from 9:00 a.m. to 12 Noon and from 1:30 to 4:30 p.m. See also Summary of Registration Procedures, page 17.

Housing

It is the policy of the Board of Trustees to require the housing of undergraduates in University residence halls. Exemptions to this rule are granted to married students, to those commuting from the home of their parents, to seniors, and to those over 21 years of age. Students may also be exempted for medical reasons.

Residence halls will open for occupancy at 1:00 p.m. on the day immediately preceding Registration Day and will close on the day following the final day of classes. Room assignments will be available to pre-registered students upon arrival.

All rooms are provided with basic furniture including beds and mattresses, desks, desk chairs, lounge chair, wastebaskets, bulletin boards, window drapes, and night stands. Each student is responsible for providing ash trays, pillows, bed linen, blankets, and towels. Linen service may be obtained by contract with a private linen service.

Those eligible to reside off campus may obtain housing information by writing to the Off-Campus Housing Office, 236 Whitmore Administration Building, University of Massachusetts, Amherst, Massachusetts 01002.

Board

The University Food Services will offer a 15-meal, Monday through Friday, meal ticket at a charge of \$3.20 per day or \$16 per week. All students in University residence halls are required to purchase this meal ticket except those students who are seniors, over 21 at the time of registration, or married. This board, contract offers a highly selective menu with a "seconds" policy on all items.

The Student Union and two snack bars at Hampden and Worcester Commons are open for a la carte service throughout the week and weekend. At the new Campus Center, meals may be purchased at either the coffee shop or in the dining room.

Expenses

In order to avoid delays at registration, students are encouraged to pre-register, by mail, by June 7 for the main eight-week term of Summer Session. This will enable the Cashier's Office to prepare a

bill for each student, making it possible for the student to pay in advance. A STUDENT CANNOT REGISTER UNLESS HIS BILL IS PAID IN FULL.

As this Bulletin is prepared long in advance of the summer, the fees listed are subject to change.

TUITION for residents of Massachusetts	\$ 10 per credit
TUITION for non-residents of Massachusetts	\$ 15 per credit
HEALTH FEE*	\$ 2 per week
CAMPUS CENTER FEE*	\$ 1.50 per week
STUDENT ACTIVITIES FEE*	\$ 2 per week
BOARD—	
WEEKDAYS ONLY	\$16 per five-day week
RENT	\$ 17 per week
2 Weeks' Rent	\$ 35
8 Weeks' Rent	\$140

SPECIAL FRESHMAN PROGRAM

TUITION for residents of Massachusetts	\$100
TUITION for non-residents of Massachusetts	\$300
(The matriculation fee payment of \$15 will be deducted from both tuition rates)	
HEALTH FEE*	\$ 16
CAMPUS CENTER FEE*	\$ 12
STUDENT ACTIVITIES FEE*	\$ 16
ATHLETIC (Physical Education)	\$ 10
BOARD—WEEKDAYS ONLY	\$128
RENT	\$140

BOOKS, STATIONERY AND SUPPLY EXPENSES

Students should be prepared to pay for necessary books and incidental supplies. Certain departments make special charges for laboratory supplies.

*Required fees, to be paid by all students including commuters.

Tuition and Fee Refunds

A student who leaves the University before a term is completed will ordinarily be granted a refund of tuition and fees according to the following schedule:

- a) During the first week of each term 60%
- b) During the second week of each term 20%
- c) After the second week No refund

A student who makes an advance payment and then for any reason does not attend any part of that term will be given a full refund of tuition and fees. (Contact the appropriate Registrar's Office.)

A student involuntarily called into military service before the completion of a term will be given

a pro rata refund of tuition and fees provided that he receives no academic credit for the work of that term. If academic credit is given, there will be no refund.

A student who is suspended or expelled from the University for disciplinary reasons forfeits all rights to a refund.

No refund will be given of prepaid room rent after a term has begun and the room has been occupied.

Residence

New students who are residents of Massachusetts must file a Certificate of Residence with the Treasurer's Office in order to obtain a residential tuition rate. The application form includes the appropriate certificate.

Veterans and War Orphans

Students eligible for educational benefits through the Veterans Administration, either as veterans or as children of deceased or disabled veterans, should present certification of eligibility at registration. If already receiving benefits, they should enroll again for them. Students are invited to consult the Placement and Financial Aid Office, Whitmore Administration Building, which acts as a clearing center for matters pertaining to the Veterans Administration.



Motor Vehicle Registration

Any student who is eligible to have a car on campus must register it with the Parking Office, 105 Hampshire House. Current University of Massachusetts stickers must be displayed on the front and rear bumpers of all registered vehicles. Eligible are: commuting students, seniors, and married students. Driving to and from classes is prohibited; however, the following exception is in effect: students whose locomotion is seriously impaired will be issued, by the Infirmary, an appropriate form for a medical waiver. This allows a student to drive and park his car in any legal zone on campus.

All persons who operate a motor vehicle on campus are required to abide by the University of Massachusetts motor vehicle rules and regulations.

Administrative Contacts

The usual initial contact for students with the administrative staff is based upon a student's local residence—residence hall students should begin with their Area Coordinators; men and women commuters with the Office of Non-resident Student Affairs.

Academic Information

Adding or Dropping Courses

A student may add or drop any course during the first four class days of the term without notation on his record. No course may be added after the fourth day. After the fourth day but before the eleventh day, a course may be dropped with a mark of W (withdrawn) recorded. After the tenth day, any course dropped is recorded as WF (withdrew failing). This grade is computed in the quality point average.

Exceptions to this rule are made in certain cases of protracted illness or serious personal or social problems. In such cases, a WP (withdrew passing) may be recorded if the student obtains the following: 1) the favorable recommendation of the appropriate University Health or Student Personnel officer; 2) the approval of his adviser and the Dean of his school (for visiting students only, approval of the Director of the Summer Session is substituted for that of the adviser and the Dean); 3) certifica-

tion from his instructor that he was passing the course at the time he first contacted the appropriate student personnel officer regarding his problem. Forms for the above may be obtained at the Registrar's Office by undergraduates, and at the Graduate School by graduate students. An overload of courses is not considered sufficient grounds for dropping a course under this arrangement.

SPECIAL FRESHMAN PROGRAM

A student enrolled in the Special Freshman Program may drop any course during the first seven days of the term without notation on his record. No class may be added after the first seven days. After the seventh day and through July 24 (mid-term date), a course may be dropped without penalty and a W (withdrawn) recorded. After this date, any course dropped is recorded as a WF (withdrew failing) and is computed in the quality point average. Exceptions to this rule are made in certain cases of protracted illness or serious personal or social problems. In such cases a grade of WP (withdrew passing) may be recorded. The forms required for the above may be obtained from the Registrar's Office.

Overload of Credits

A full Summer Session program is usually considered to consist of two three-credit courses. Students who wish to register for additional credits must secure approval as follows:

1. 9 credits (one extra course)
Academic Dean (University students)
Director of Summer Session
(visiting students)
2. A senior graduating in Summer or the following January may register for 9 credits without extra permission.

Forms for overloads for undergraduates may be secured in the Registrar's Office, 213 Whitmore Administration Building. Graduate students should inquire at the Graduate Office, Munson Hall.

Auditing

A student who intends to audit a course must register and pay the regular tuition and activities fees. There is no special audit fee. A student who drops a course during the term, but wishes to continue on an audit basis, will receive a grade in accordance with the existing regulations governing the Add and Drop periods.

Accelerated Enrollment

The University invites superior high school students to begin their college education immediately upon graduation by enrolling in the Summer Session. For the highly motivated student who, perhaps, is already convinced that his formal education will require graduate or professional studies, an early start may conserve valuable time. Similarly, students in financial need may find it less expensive to complete their undergraduate education in less than four years. Summer Session attendance can substantially reduce the time necessary to obtain a bachelor's degree.

Students who wish to start their University of Massachusetts undergraduate work in the summer are advised to apply to the Admissions Office for regular admission by the fall of their senior year. Their applications must be received and complete no later than March 1. At the same time they should indicate their desire for summer study. The Registrar's Office will forward a Summer Session application and detailed information regarding the summer program.

Students who have been accepted at institutions other than the University of Massachusetts may enroll in the summer program providing they secure the approval of their college. A space for this approval is furnished on the Summer Session application.

Special Freshman Program

Each year a number of high school graduates are admitted to the University with the stipulation that they begin their college careers in the Summer Session, take their vacation period during the fall semester, and join their regular class for the spring semester. After completion of this first year, students then follow the regular school year sequence.

This is an invitational program for students who apply for regular admission to the University, and is not available to visiting students. Begun in the summer of 1964 with 180 students, the program has been expanded significantly in recent years and will accommodate 300 students this summer. In order to avoid, wherever possible, conflicts with high school commencement and senior class activities, the 1971 Summer Session for students enrolled in this program will commence June 28 and extend for 8 weeks through August 20.

Students will normally complete 9 credits of academic work in addition to one semester (1 credit) of required physical education. While course offerings will be limited (approximately 21 courses

from 16 departments), there will be sufficient breadth to ensure most people a balanced program. In addition, a student may select one course from the numerous regular Summer Session offerings if such a choice would be in the student's best interest. Since the work completed during the summer term does not constitute the equivalent of a regular semester, students should be prepared to enroll in two courses in the fall semester in their home area to ensure that they have sufficient credits to equal a full semester.

The academic program is composed primarily of lower division courses specifically designated for students in this program. However, various courses from the regular Summer Session offerings may be elected to supplement the courses specifically designated for special freshmen. Ordinarily, a student will select three courses, including Rhetoric, plus physical education. The departments offering courses in the Special Freshman Program are:

Art	History
Botany	Mathematics
Chemistry	Philosophy
Engineering	Psychology
French	Rhetoric
Geology	Sociology
German	Spanish
Government	Zoology



Thesis and Problems Credit

Graduate students contemplating special course work and thesis work during the Summer Session should seek the permission of their department heads and/or advisers. Special and thesis courses are listed by number in the departmental offerings section of this bulletin. A student who fails to register for such work will not receive an ID card, and cannot use University facilities.

Withdrawals

An undergraduate student who has attended Summer Session classes and who desires to drop all his courses and thus terminate enrollment must observe formal procedures. Summer Session withdrawal papers originate in the Office of Non-resident Student Affairs for commuting students, and with the Southwest Area Coordinator for on-campus residents. If a student withdraws from the Summer Session during the second half of the term (after July 31), grades of WF or WP will be entered, as appropriate, for all courses.

Summer Session withdrawal papers for graduate students may be obtained at the Graduate School, Munson Hall.

Credit for Summer Work

All courses carry degree credit and are equivalent in method, content, and credit to courses offered at the University during the regular academic year. Credits obtained in these courses are ordinarily accepted as transfer credits by other colleges and universities.

Students who are registering for the first time or who have registered previously and desire to pursue an advanced degree at the University must secure the approval of the requisite departments and approval of the Dean of the Graduate School on the appropriate application form.

Special Programs

French Studies at Pau

The program in Pau, southwest France, provides study in French language, stylistics, literature and civilization. Courses are taught by French university professors, mainly from the faculties of Bordeaux and Toulouse. Open to both undergraduates and graduate students, the program permits students to study in courses appropriate to their language ability and interests. Up to six University of Massachusetts credits in French can be earned. The total program is from June 17 to August 26, the study program from July 8 to August 22, permitting independent or group travel before and after the study program. An integral part of the program is excursions to Lourdes, the Basque country, and other places of cultural interest. The participation fee is \$700, and covers international travel, tuition, room and board at Pau, and excursions planned as part of the program. A limited number of partial scholarships are available. Contact: French Studies at Pau, Department of French, Italian and Classics, Herter Hall, University of Massachusetts, Amherst, Massachusetts 01002.

Hispanic Studies in Madrid

In its 1971 program in Madrid, June 16 to August 26, the Department of Hispanic Languages and Literatures offers two graduate seminars, two courses open to graduates, to 1972 seniors and, by permission, to approved students of the class of 1973, and one undergraduate course. They are all



conducted in Spanish and carry 3 credits each. The normal load is 6 credits. The purpose of the program is:

1. to provide access (for qualified students) to intensive advanced work in literature and the history of ideas;
2. to offer the experience of total immersion in the Spanish language and culture;
3. to introduce students to Spanish scholars and creative intellectuals and artists who have not come to the U.S. to teach. Among the distinguished faculty for 1971: Pedro Lain Entralgo, Juan Cano Ballesta, José Luis Alonso-Misol, and José Olivio Jiménez.

In addition to a six-week course of study, the program offers lectures, integrated weekend trips, and an optional post study tour of Andalucía. Basic fee includes round-trip air transportation, tuition, room and board in a selected private home, (June 17 to August 2), lectures and excursions. Basic cost to Massachusetts students is \$875; to non-residents \$905. Optional trips cost approximately \$100.

For further information, write to: Director, Madrid Program, Herter Hall, University of Massachusetts, Amherst, Massachusetts 01002.

Oxford Program

A special group of courses in English literature is regularly offered at Trinity College, Oxford, during July and part of August. The six-week session corresponds with the regular session of this University and awards University of Massachusetts credit. The courses are all taught by Oxford dons (current or past) and the Bodleian Library is available for extensive research. Graduate and undergraduate courses are offered and vary each year according to the availability of specialists at Oxford and the interest of students. Special evening lectures by noted authorities supplement these offerings. Overall cost to the student is \$850. Contact: Professor Ernest Hofer, Department of English, Bartlett Hall, University of Massachusetts, Amherst, Massachusetts 01002.

Study in Bologna

The University sponsors a program of summer study in Bologna, Italy, beginning in mid-June and ending the last week of August. The program is staffed primarily by members of the faculty of the University. The curriculum consists of regularly scheduled University courses on subjects in which

the Italian location contributes significantly to the student's understanding and experience. Field trips to major cultural centers in Italy are an integral part of the program. Any student in good academic standing at his college or university is eligible. Students will be expected to take two of any of the 3-credit courses in the fields of Art, History, Italian, Government and Music. Cost to the student will be approximately \$875. Enrollment is limited. Contact: Professor Roland Sarti, Department of History, Herter Hall, University of Massachusetts, Amherst, Massachusetts 01002.

German Studies in Freiburg

The Department of Germanic Languages and Literatures sponsors a six-week summer program, one week in Berlin, and five weeks in Freiburg, Germany. Courses in elementary, intermediate, and advanced German are offered. Students may earn up to six University of Massachusetts credits. There is a three-week period for independent travel in Europe between the initial week in Berlin and the five-week study program in Freiburg. Dates of the program are June 17 to August 26.

The course fee of \$800 covers round-trip international travel, tuition, room and board, and special excursions to a number of places of cultural and historic interest, including Köln, Aachen, and the Black Forest. The program is open to both graduate and undergraduate students, and is based at the University of Massachusetts Study Center in Freiburg. For further information, write to: Professor Albert Reh, Department of Germanic Languages and Literatures, Herter Hall, University of Massachusetts, Amherst, Massachusetts 01002.

Program ABLE

Program ABLE (Accelerated Business Leadership Education), offered by the School of Business Administration, is designed to develop and enhance managerial skill among members of minority groups in our society. Persons who are presently employed in business and possess an undergraduate degree, or are graduates of accredited schools or colleges, are eligible for enrollment.

The program leads to the Master of Business Administration degree. An initial Summer Session consists of an intensive sequence of instruction in the disciplines underlying graduate business education. Following successful completion of the summer work, students are admitted to the regular M.B.A. program of the School of Business Administration.

The entire program may be completed in 15 months—one academic year and two Summer Sessions. Financial aid is available, based on need.

For further information, write to: Dean Lawrence Johnson, School of Business Administration, University of Massachusetts, Amherst, Massachusetts 01002.

Summer Arts Program

Each year a Summer Arts Program is presented by the University of Massachusetts, providing the University community with a varied and balanced presentation of the arts. A film series provides at least one film a week. Prominent musical artists and lecturers are engaged throughout the summer. Both national travelling art exhibits and exhibits of local artists are shown. The Summer Repertory Theatre presents plays of professional quality each season. Summer Session students are admitted free of charge to all Summer Arts Program events upon presentation of their Summer Arts Ticket. Details of the Summer Arts Program events and ticket information will be available at registration, the Student Activities Office, and the Fine Arts Council Office.



Student Activities

The Student Activities Office in the Campus Center is the focal point for social, community, governmental, social action, cultural, and educational enrichment activity, in addition to serving as the headquarters for Recognized Student Organizations (R.S.O.) and the Program Office. It provides resource material and counsel on program planning, organizational work and group dynamics, entertainment selection and procurement, service and aid projects for campus and community, special interest activities and recreation, as well as counsel on budgeting, purchasing and contracting. The Student Activities Office also provides a banking, bookkeeping, and auditing service for student organizations.

Participation in extracurricular activities offers opportunities to further the broader objectives of a college experience. More than 50 professional clubs on campus extend classroom interest through closer contact with members of the faculty and representatives of the professions. For those interested in communications, there are several campus publications and an FM radio station. A wide range of social and cultural programs are coordinated through the residential colleges.

Student Activities Staff

The following staff personnel may be contacted for any service or assistance needed:

Gerald F. Scanlon, Assistant Dean of Students, Coordinator of Student Activities; Sheila A. McRevey, Assistant Coordinator of Student Activities; Jill W. Cochrane, Program Adviser; James E. Swartz, Program Adviser; Armand H. Demers, Supervisor of R.S.O. Accounts, and James Riley, Program Adviser.



Student Personnel Services

Student Personnel Services comprise the administrative agencies with primary concern and responsibility for students and student services outside the classroom. Student Personnel Services is administered through the Dean of Students by Dr. Randolph Bromery, Vice-Chancellor for Student Affairs, Whitmore Administration Building (5-2334).

Dean of Students

Dr. William F. Field — 227 Whitmore (5-2685)

The Dean of Students directs and supervises the activities of all Student Personnel offices, including the following:

ASSOCIATE DEAN OF STUDENTS

Mr. W. Daniel Fitzpatrick — 229 Whitmore (5-2192)

The Associate Dean is responsible for the general administration of all residence halls and the activities program of men and women undergraduates. The Associate Dean's Office includes in its staff grouping the Housing Office, Coordinator of Student Activities, Campus Center Manager, the Area Coordinators and all Heads of Residence.

ASSISTANT DEANS OF STUDENTS — RESIDENCE HALLS

Mr. Michael West, East Area; Mr. Thomas Trotman, West Area; 229 Whitmore (5-2192)

The Assistant Dean of Students for the East Area has overall responsibility for the residence halls on the East side of campus including Orchard Hill, Central, Northeast and the new residence halls now under construction in the Northeast Area, including supervision of area coordinators, counselors, business offices, and maintenance staffs. The Assistant Dean of Students for the West Area has similar responsibility for all Southwest residence halls.

ASSISTANT DEAN OF STUDENTS — STUDENT ACTIVITIES

Mr. Gerald F. Scanlon — Campus Center (5-2351)

The Assistant Dean of Students for Activities coordinates the operation of the Student Activities Office which is composed of the Program and R.S.O. Offices, the focal point for student cultural, social action, governmental, social and educational activities. His responsibilities include all phases of student activities ranging from individual student needs to organizational coordination and develop-

ment including the Student Senate, Campus Center Governing Board, class organizations, and approximately 400 special interest groups.

OFFICE OF NON-RESIDENT STUDENT AFFAIRS

235 Whitmore (5-2711, 2240)

This office is responsible for administrative liaison with and development of programs for non-resident students; commuters, fraternity residents, and sorority residents.

DEAN OF WOMEN

Miss Helen Curtis — 235 Whitmore (5-2240)

The Dean of Women serves off-campus women students, and provides academic counseling for married women students. The office also has short-term emergency loans and information on special loans and fellowships for women.

HOUSING OFFICE

Mr. James C. West, Director (and Business Manager, Student Affairs) — 232 Whitmore (5-2100)

The Housing Office has responsibility for the supervision of residence hall room assignment, room changes, and other University operated housing facilities.

CAMPUS CENTER

Mr. Warren T. Grinnan, Manager (5-2523)

The Campus Center Manager administers and coordinates the management policies of the Campus Center Complex (which includes the Student Union Building and the new Campus Center). The duties include close coordination with the Campus Center Governing Board, serving on various committees concerned with student services, and supervision of the Campus Center Complex staff and services. Major areas of responsibility include the University Store, Campus Center Food Services, Lobby and Games Area, Campus Center Overnight Accommodations, Parking Garage and Print Shop.

FOREIGN STUDENT ADVISER

Mr. Arthur W. Boatin — 229E Whitmore (5-2843)

The Foreign Student Adviser offers assistance to foreign students, faculty and staff, and should be consulted in regard to all matters pertaining to their official immigration status while in the United States. In addition the adviser may be consulted regarding any other problems which a person from another country encounters while at the University, such as regarding housing, financial matters, and personal relations.



ADMISSIONS AND RECORDS

Dr. William D. Tunis, Dean of Admissions and Records — 225 Whitmore (5-0222)

Mr. Ralph Jones, Registrar — 213 Whitmore (5-0555)

The Admissions Office is responsible for all administrative procedures with respect to undergraduate admissions to the University including liaison with high school guidance counselors, Community College staff personnel and other admissions officers for transfer students, and admissions standards set in coordination with the Provost and academic departments.

The Registrar's Office is responsible for undergraduate students at the University, administrative procedures relating to course of study, withdrawals, producing grade reports, transcripts, and maintaining the permanent academic record cards.

COUNSELING CENTER

Dr. J. Alfred Southworth, Director — 243 Whitmore (5-0333)

The basic aim of the Counseling Center is to support the student's efforts to develop into a mature, useful, self-fulfilled member of society. The Center's day-to-day work with the student-client involves psychological counseling on personal, social, educational and vocational problems. Other services include summer counseling for those entering in the fall, and academic advising. See the current *Student Handbook* for further information.

Consultation

Students consult with Counseling Center staff on such diverse topics as the construction of opinion polls, attitudes of staff towards campus issues, or approaches to remedying a difficult situation with parents, studies, roommates, etc. Students are encouraged to consult with the staff on any topic that would appear to be even remotely connected with the broad interests of the staff or the services offered by the Center. Many come to talk over transient adjustment problems or personal difficulties that they do not choose to share with friends, parents, or instructors. Many seek help with decision-making in vocational and educational matters. Most are dealing with problems of daily living that are a part of college life.

All individual counseling contacts with members of the Counseling Center staff are strictly confidential.

No information is released to members of the University community, to parents, or to outside agencies (such as graduate schools, law enforcement agencies, or draft boards) without the student's explicit authorization, in advance.

When the need arises, the Counseling Center staff also administers and interprets psychological tests for assessing student's abilities, interests, and personalities.

Appointments

Generally, students seeking an appointment are seen immediately for an initial intake interview. An appointment is then made within a few days of the first interview.



HEALTH SERVICES

Dr. Robert Gage, Director, University Health Services (5-2671)

The University Health Services has been organized to help students prevent health problems which might limit the effectiveness of their college experience. Direct services to students are supported by the Health Fee.

A staff of physicians, nurses, psychologists, pharmacists, physical therapists, technologists, and other personnel especially trained to meet student health needs are ready to provide comprehensive care in a well-equipped infirmary building. Students are encouraged to use the Health Services to obtain health care in the same way they would consult their family physician and would use the community hospital at home.

Those students who have paid the Health Fee are entitled to any care rendered on the campus by members of the staff of the Health Services. The provision for care off campus can be arranged by the Health Services, but the cost of these services is the responsibility of the student.

Out-Patient Clinic

For a minor problem, such as a mild cold, a nurse often can offer effective treatment and save waiting time, or a student can visit the "cold self-treatment center" where medication and instructions for treating an uncomplicated respiratory infection are available.

In general, medications prescribed by the staff

are provided without additional cost to students who have paid the health fee, except certain medications prescribed for prolonged periods. Laboratory studies, x-ray, physical therapy, and care for emotional problems are available at the Infirmary, also without additional cost.

In-Patient Clinic

The Infirmary is also a hospital providing bed care for up to 80 students with serious illnesses. Usually the time lost from schoolwork is minimized if students remain on campus in the Infirmary, where books and class notes are available, instead of going home to a hospital. Notification of parents and faculty is ordinarily the student's responsibility.

The details of medical problems are held in strict confidence and will be released to others only with the patient's permission. Parents are not notified when students visit the medical clinic or when students are admitted as in-patients unless a serious condition exists; for example, requiring major surgery.

Mental Health Department

The medical clinic physicians may recommend that a student consult one of the Mental Health staff if it appears that a medical problem is partly the result of tension or anxiety; this is often the case with students who live under conditions of considerable stress. Students may make an appointment with one of the Mental Health staff, located in Machmer Hall. *All records are strictly confidential and will not be released without student authorization.*

Summary of Registration Procedures

Pre-registration—Regular Session

(Students in the Special Freshman Program will be notified of acceptance and registration procedures by mail.)

1. Review and select courses from this Summer Session Bulletin.
2. Complete Summer Session Registration Application forms. (Residency, if applicable.) Graduate students complete Special Registration form also.
3. Mail form to Registrar's Office (Undergraduate, 213 Whitmore Administration Building or Graduate, Graduate School, Munson Hall.) Deadline: June 10.
4. Pay tuition and fee bill upon mail request.
5. Confirm registration on June 28, at Boyden Gymnasium.
6. Course changes received prior to June 7 will be processed. If received later, they must be taken care of on Registration Day.
7. Housing assignments mailed directly to pre-registered students.
8. Dining Commons tickets — see Dining Commons Representative at Boyden Gymnasium on Registration Day; or see representative at the Central Food Service Office, Worcester Dining Commons, after Registration Day.
9. All tuition and fee bills must be paid before attending classes.

Late Registration—June 28

(At Boyden Gymnasium, or at Registrar's Office after this date.)

1. Review and select courses from this Summer Session Bulletin.
2. Complete application forms.
3. Have courses approved by department representatives.
4. Pay tuition and fee bills at Cashier's Office.
5. Deliver data processing cards to departments.
6. Complete housing arrangements with Housing Representative at Boyden Gymnasium on Registration Day; or at Housing Office, 232 Whitmore Administration Building, after Registration Day.
7. Complete dining arrangements, if desired, with representative at Boyden Gymnasium; or after this date, at Worcester Dining Commons.

Course Changes

(At Boyden Gymnasium on Registration Day, or at Registrar's Office or Graduate School after Registration Day.)

1. Review and select courses from this Summer Session Bulletin.
2. Complete course add-drop form.
3. Secure departmental approval and have Registrar's Office review.
4. Pay any remaining bill at Cashier's Office.
5. Deliver data processing cards to departments.



Directory of Courses

Information for Course Selection

The following course descriptions include all information needed to select a schedule of courses. Buildings and room assignments will be available at registration.

Numbers preceding the course titles conform to the following outline:

- 000-099 Non-credit courses, non-quality point courses, entrance deficiencies
- 100-199 Undergraduate credit only — Lower Division
- 200-399 Undergraduate credit only — Upper Division
- 399 Honors Work
- 400-499 Professional courses which presume a bachelor's degree
- 500-699 Graduate credit only; courses corresponding to 200-399 series
- 700-999 Graduate level courses

Two numbers preceding a course title designate a course offered for both undergraduate and grad-

uate credit. The student must sign for either graduate or undergraduate credit — *not both*.

All courses are for three credits unless otherwise indicated with the course description. In cases of *specifically arranged hours*, the student and instructor must agree on the number of credits to be earned. The student must indicate the desired number of credits on the application.

A letter code indicates the specific 60-minute class periods — (See page 5.) All courses meet every day, Monday through Friday, unless otherwise specified. Courses which meet at *special times* are appropriately described. **If no time period is specified, hours are by arrangement.** Special Freshmen Program courses begin on June 28 and end August 20.

Courses or labs which may be selected at *more than one time* are designated: A; B; C; etc. Courses meeting for *longer than one period* are described by hyphenating the first and last period during which the courses meet, e.g., A-C, D-F, etc.

Accounting

110. INTRODUCTION TO COMPUTERS FOR BUSINESS

A;C
The BASIC and FORTRAN computer programming language with emphasis on the use of the computer for business data processing and problem solving. (Also listed as Management 100.)

120. INTRODUCTION TO FINANCIAL ACCOUNTING.

A;C
Introduction to principles underlying the preparation of financial statements.

130. INTRODUCTION TO MANAGERIAL ACCOUNTING.

A;C
Continuation of Accounting 125 with major emphasis on the development and application of accounting data for planning and control.

210/510. BUSINESS APPLICATIONS OF COMPUTERS.

E
Intermediate and advanced computer programming with emphasis on problems in accounting and management information

systems. Prerequisites, Acctg. 125, 126 and Acctg./Mgt. 100. (Also listed as Management 251.)

220;221. INTERMEDIATE ACCOUNTING.

D
Intensive examination of fundamental concepts underlying financial reporting. Study of current literature dealing with effects of alternative methods upon measurement of periodic income. A terminal course for non-accounting majors and a foundation for the accounting major. Prerequisite, Accounting 126.

370. FEDERAL INCOME TAX PROCEDURE.

B
Federal income tax laws and regulations as they affect individuals; preparation of tax returns. Prerequisite, Accounting 125 or 127.

385. I. CPA PREPARATION — PRACTICE

Deals with the largest single section of the examination. An accounting "capstone" course. Provides extensive review in approaching problem areas covered in a typical undergraduate accounting program. June 28-August 6, TuTh, 7-10 p.m.

Certificate of Domicile and Residence

Residence Requirements for Massachusetts Tuition Rates

As a state institution, University of Massachusetts offers the privilege of in-state tuition to all students entering from the Commonwealth. Eligibility for admission under the low residential rate is determined in accordance with the following policy established by the University.

1. A student must present evidence satisfactory to the Treasurer of the University that his domicile is in the Commonwealth of Massachusetts in order to be considered eligible to register in the University as a resident student. He must also have established a bona fide residence in the Commonwealth for a period of not less than one continuous year prior to the date of acceptance at the University, and certify his intention to continue to maintain such a residence.

2. The domicile and residence of a minor shall follow that of the parents unless such minor has been emancipated. In case of emancipation, the student in addition to the requirements of these regulations respecting domicile and residence shall present satisfactory proof respecting emancipation. Minors under guardianship shall be required to present in addition to the certification of domicile

and residence satisfactory documentary evidence of the appointment of the guardian.

3. No student shall be considered to have gained residence by reason of his attendance in the University nor shall a student lose residential preference during his continuous attendance at the University unless he ceases to be a citizen of the Commonwealth.

4. The domicile and residence of a wife shall follow that of the husband.

5. This form of certification for classification as to domicile and residence status must be submitted by each student. Misrepresentation of facts in order to evade the payment of out-of-state tuition shall be considered sufficient cause for suspension or permanent exclusion from the University.

6. Discretion to adjust individual cases within the spirit of these rules is lodged with the President of the University.

Note: The certificate on the reverse side is required only for new applicants to the University.

Certificate of Domicile and Residence

New applicants claiming the in-state tuition rate established for Massachusetts residents must submit this form properly completed.

Name of Student _____

Statement of Parent or Guardian:

(If student is under 21 years old)

I, _____, certify that I am the legal parent () guardian* () of _____ and that he (she) is domiciled in the Commonwealth of Massachusetts and has maintained a bona fide legal residence herein for a period of not less than one continuous year prior to the date of acceptance at the University; further, that he (she) intends to continue to maintain such a residence.

Signature _____

Statement of Student if 21 years or older:

I, _____, certify that I am 21 years or older and that I am domiciled in the Commonwealth of Massachusetts and have maintained a bona fide legal residence herein for a period of not less than one continuous year prior to the date of acceptance at the University; further, that I intend to continue to maintain such a residence.

Signature _____

*If certification is that of guardian, copy of Court appointment must be submitted.

Statement of Town or City Clerk:

This is to certify that the records of the City (Town) of _____

indicate that _____

is a legal resident of _____, Massachusetts,

Signed _____

Title _____

Date _____

(Seal)

NOTE: REGULARLY ENROLLED UNIVERSITY OF MASSACHUSETTS STUDENTS (BOTH AMHERST AND BOSTON) WHO HAVE A CERTIFICATE OF RESIDENCE ON FILE DO NOT HAVE TO SUBMIT THIS FORM.

Registration Application

Summer Session 1971

University of Massachusetts at Amherst

Completed applications should be returned as follows:

- For undergraduate work —
Registrar's Office
213 Whitmore Administration Building
University of Massachusetts
Amherst, Massachusetts 01002
(Telephone: 545-0555)
- For graduate work —
Graduate School Office
Munson Hall
University of Massachusetts
Amherst, Massachusetts 01002
(Telephone: 545-0024)

SPECIAL NOTICE — Admission to the Summer Session in no way implies admission to a regularly scheduled semester (fall or spring) of the University.

PLEASE PRINT

Name _____

LAST MAIDEN FIRST INITIAL

Home Address		
NUMBER	STREET	HOME TELEPHONE

City _____ State _____ Zip Code _____

Country of Citizenship _____

Summer Billing Address, if different _____ Zip Code _____

EDUCATIONAL RECORD	degree	dates
Secondary School		
Colleges Attended		

CHECK AND COMPLETE ONE OF THE FOLLOWING APPROPRIATE ITEMS:

- ☐ 1. Currently enrolled University of Massachusetts student: Campus —
☐ Amherst ☐ Boston (complete Block 1)
- ☐ 2. *Formerly enrolled University of Massachusetts student: Campus —
☐ Amherst ☐ Boston (complete Block 1) Date of last attendance
*Note — Students twice dismissed from the University for academic deficiency are not eligible to attend Summer Session without approval from the Board of Admissions and Records
- ☐ 3. Accepted as a new University of Massachusetts student: ☐ Regular ☐ Undergraduate
☐ Graduate ☐ Accelerated Summer Freshman
- ☐ 4. A summer visiting student only (complete Block 2) ☐ Undergraduate ☐ Graduate —
A Transient Student application must also be filed.

UNDERGRADUATE FROM BOSTON CAMPUS BLOCK 1 This certifies that the student has been enrolled at the Boston campus and has our approval to take courses listed. Record Clear: ☐ Yes; ☐ No (If No, state nature of encumbrance)	Adviser's Signature
	Registrar's Signature
	Date

UNDERGRADUATE FROM OTHER COLLEGES: BLOCK 2 This certifies that the student has been enrolled at this institution and has our approval to take the courses listed.	Name of College	
	Signature	
	Title	Date

TENTATIVE PROGRAM OF COURSES					
Department		Number	Title	Starting Date	Crs.
Special Sessions					
Department		Number	Title	Meeting Period	Crs.
Main 8-Week Term					

REGULAR UNIVERSITY STUDENTS:								
☐	☐	☐	☐	☐	☐	☐	☐	☐
Student Number							Class or Graduate	

PLEASE CHECK APPROPRIATE BOXES:

- ☐ Undergraduate ☐ Graduate
- ☐ Male ☐ Female
- ☐ Single ☐ Married
- ☐ Reside in Mass. ☐ Out of State
- ☐ Foreign

Major Dept. _____Date of Birth _____

RESIDENCE PLANS — CHECK ONE

- ☐ Commuting from home of parent or spouse
- ☐ Plan to live in Residence Hall
Roommate choice is:

- ☐
- Plan to live off-campus (see regulation — undergraduates must be 21 or seniors)

BOARD PLANS — CHECK ONE

- ☐ Plan to dine on campus
- ☐ Off-campus dining plans (see regulations)

For Office Use Only	
No. Credits	
Tuition	S
Rent ☐	I
Board ☐	
Activities	
S. U.	
Health	
Athl. Fee	
Total	
DORM CODE	

Read and fill in carefully — PLEASE PRINT

Name _____

LAST MAIDEN FIRST INITIAL

Home Address _____ STREET _____ CITY _____

STATE _____ ZIP CODE _____ Student Number _____

Sex: ☐ FEMALE ☐ MALE Age: _____ this summer: _____Institution from which degree is expected: _____Major (UG) or Dept. (GRAD): _____

GRADUATE STUDENTS ONLY

- ☐ Master's Degree
☐ Doctoral Degree
☐ Other _____
☐ Year: 1st Year
 2nd Year
☐ 3rd Year
☐ Other _____

UNDERGRADUATES ONLY

Year of Study (as of Sept.):

- ☐ Freshman
☐ Sophomore
☐ Junior
☐ Senior
☐ Swingshift
☐ Non-matriculating

GRADUATES AND UNDERGRADUATES

Check as many as are applicable

- ☐ Accelerating to graduate early
- ☐ Making up course(s) failed
- ☐ Making up deficient credit hours
- ☐ Working for advanced degree only summers
- ☐ Writing Thesis
- ☐ In Special Summer Institute:
Title and Code: _____
- ☐ Nothing else to do
- ☐ Other _____

385. II. CPA PREPARATION — THEORY

Intensive review of conceptual knowledge of accounting required to answer questions on the CPA examination. Bulletins of the Accounting Principles Board referred to extensively. June 21-August 6, W, 7-9 p.m. *Credit, 1.*

385. III. CPA PREPARATION — AUDITING

Reviews areas of auditing ranging from auditing standards to auditors' ethical standards. Statements on auditing procedure of the AICPA are covered. August 9-August 20, MW, 7-10 p.m.

Credit, 1.

385. IV. CPA PREPARATION — LAW

Textbook treatment of legal problems inherent in business transactions and in the audit thereof. Questions drawn from recent CPA examinations, based on the Uniform Commercial Code. August 9-August 20, TuTh, 7-10 p.m.

Credit, 1.

411. INTRODUCTION TO ACCOUNTING

Introduction to principles underlying preparation of financial statements and the development and application of accounting data for planning and control.

711. ACCOUNTING IN MANAGEMENT

The production and use of accounting and other quantitative data for decision-making related to planning and control.

Anthropology

103. INTRODUCTION TO

PHYSICAL ANTHROPOLOGY.

Human evolution, human variation, racial classifications, racism, and modern theories of variation.

104. INTRODUCTION TO CULTURAL

ANTHROPOLOGY.

Social and cultural Anthropology dealing with variations among societies in technology and economics, social and political organization, art, religion, and ideology.

365. WORLD ETHNOGRAPHY.

Selected societies of Africa, the Americas, Asia and Oceania. Problems of comparing societies, especially with regard to their environmental contexts and levels of productivity. Prerequisite, Anth. 104 or permission of instructor.

367. CULTURES OF AFRICA.

An extensive survey of the cultures of Africa, a comparison of their social, political, religious, and economic patterns, and toward consideration of the evolution and interrelationship of the cultures of the area. Prerequisite, Anth. 104 or permission of instructor.

377/677. SUMMER FIELD IN ARCHEOLOGY.

Practical experience in archeology. Both prehistoric and colonial sites are excavated. Instruction in archeological methods and techniques. Prerequisite, Anth. 102 or equivalent and permission of instructor. Site: Rowe, Mass. June 29-August 20, MTuWThFS. *Credit, 6.*

380/680. FIELD COURSE IN CULTURAL ANTHROPOLOGY.

A summer course affording the advanced undergraduate or graduate student supervised training in cultural anthropological research. Location varies from year to year. Prerequisites, advanced course work in Anthropology and permission of instructor. June 7-July 30, MTuWThFS. Site: St. Vincent. *Credit, 6.*

385. SPECIAL PROBLEMS IN ANTHROPOLOGY:

LANGUAGE AND CULTURE.

Art

100. BASIC DRAWING.

Drawing in black and white, applying pencil, crayon, charcoal techniques to representation in line and tone, emphasizing sound observation and effective presentation.

115. INTRODUCTION TO ART.

An introduction to great works of art studied in historical sequence, including techniques and aesthetic principles.

120. BASIC DESIGN I.

Two-dimensional design concepts arising out of work with specific problems in a variety of media. 6 studio hours.

122. BASIC DESIGN II.

Continuation of Art 120. Specific 3-dimensional problems stressing the inter-relationship of materials, processes, techniques and sculptural concepts. Prerequisite, Art 120. 6 studio hours.

220/520. PAINTING I.

Easel painting in oil and related media, based on elementary understanding of physical properties of medium, and encouraging individual directions within limitations of sound composition. Prerequisites, Art 100, 120. 6 studio hours.

222/522. PAINTING II.

Initial concentration on transparent water color, emphasizing control of techniques and mastery of color relationships. Further experience with opaque water color, such as gouache, casein. Prerequisites, Art 100, 120. 6 studio hours.

224/524. PAINTING III.

Continuation of Art 220. Prerequisite, Art 220. 6 studio hours.

230/530. ADVANCED DRAWING.

Investigation and development of various techniques and media with special emphasis on figure drawing. Prerequisites, Art 100, 102. 6 studio hours.

242/542. PRINTMAKING: INTAGLIO I.

Basic study of materials, techniques, and aesthetic considerations peculiar to etching, engraving, and aquatint. Students print their own work. 6 studio hours. Prerequisites, Art 240, 242, 244.

244/544. PRINTMAKING: LITHOGRAPHY I.

Basic study of materials, techniques, and aesthetic considerations peculiar to lithography. Students print their own work. Prerequisites, Art 100, 120, or permission of instructor. 6 studio hours.

260/560. SCULPTURE I.

Experimentation with materials. Investigation into the nature of 3-dimensional form. The development of 3-dimensional order. Individual projects. Prerequisites, Art 100, 122. 6 studio hours.

262/562. SCULPTURE II.

Continuation of Art 260. Prerequisite, Art 260. 6 studio hours.

295/595. AMERICAN ART.

The earliest Colonial art and architecture, the impact of later European influences; regional art of the late 19th and 20th centuries, and contemporary developments.

340/640. PRINTMAKING: INTAGLIO II.

Advanced study of materials, techniques, and aesthetic considerations relevant to etching, engraving, and aquatint. Students print their own work. 6 studio hours. Prerequisites, Art 240, 242, 244.

385. SPECIAL PROBLEMS.

For qualified senior art majors who wish to specialize further in a particular aspect of art. Arrangements must be made with members of the department.

701. SPECIAL PROBLEMS: PAINTING.

702. SPECIAL PROBLEMS: PRINTMAKING.

703. SPECIAL PROBLEMS: SCULPTURE.

705. SPECIAL PROBLEMS: DRAWING.

706. SPECIAL PROBLEMS: ART HISTORY.

Astronomy

101. ELEMENTARY ASTRONOMY. B

Astronomy 101 is designed primarily for students not majoring in the physical sciences. Historical perspective. The solar system, systems of coordinates, laws of motion, planets and satellites, the sun. Cosmogony and current theories on the origin of life. Supplemented by evening observation; Lab MTuWTh.

Botany

100. INTRODUCTORY BOTANY. D
Structure, function and reproduction of plants, dealing primarily with the flowering plants. Basic biological principles are emphasized. Not to be taken serially with Botany 101. 2 class hours; 1 quiz hour; 1 2-hour laboratory period. Lab E-G, MW.

125. THE PLANT KINGDOM. C
A general survey of the morphology, reproduction, distribution and importance of the slime molds, bacteria, algae, fungi, lichens, liverworts, mosses, ferns and seed plants. Prerequisite, Botany 100 or Botany 101. 2 class hours, 1 2-hour laboratory period.

211/511. INTRODUCTORY PLANT PHYSIOLOGY. C
Plant processes and their relation to the complex of activity constituting plant growth. Topics include water relations, photosynthesis, fat and protein synthesis, digestion, translocation and respiration. Prerequisites, Botany 100 or Botany 101, and at least one semester of Organic Chemistry. 3 class hours, 1 3-hour laboratory period, E-G, M. *Credit, 4.*

700. SPECIAL PROBLEMS.

Credit, 1-6.

800. MASTER'S THESIS.

Credit, 3-10.

900. DOCTORAL DISSERTATION.

Credit by arrangement.

Chemical Engineering

125. FUNDAMENTALS. B
Nature and scope of chemical engineering through study of selected chemical processes and of material and energy balances. Prerequisite, Chemistry 112 or 114. 2 class hours, 1 2-hour computation period.

126. CHEMICAL ENGINEERING THERMODYNAMICS. D
The fundamental principles of Thermodynamics. An in-depth discussion of the First and Second Laws; study of properties of single-component systems, thermodynamic cycles, phase and chemical equilibria. Solution methods for complex energy and material balance problems are introduced. Prerequisites, Chem.

160, Math 173, Ch.E. 125. 2 class hours, 1 2-hour computation period.

700. SPECIAL PROBLEMS.

B

Chemistry

111,112. GENERAL CHEMISTRY.

111: D; Lab F-G, MW

112: B; Lab E-F, TuTh.

The fundamental chemical laws and theories, with the object of giving the student a sound scientific training through a course in chemistry. For engineers and other students planning to take advanced courses in chemistry. 2 class hours, 1 quiz hour, 1 2-hour laboratory period.

127. ANALYTICAL CHEMISTRY.

E-G

A broad look at the principles of analytical chemistry, for students not majoring in chemistry. Basic laboratory techniques and operations of quantitative analysis. Prerequisite, Chemistry 112 or 114. 2 lectures, 2 3-hour laboratory periods.

Credit, 4.

160. ORGANIC CHEMISTRY.

C

For students whose major department does not require a year course in organic chemistry. Prerequisite, Chemistry 102 or 112. 3 class hours, 1 3-hour laboratory period, E-G, MWF.

Credit, 4.

246/546. THEORETICAL INORGANIC CHEMISTRY.

C

A survey of theoretical aspects of inorganic chemistry chosen from such topics as electronic structure and its relation to periodic properties, chemical bonding, molecular structure, coordination chemistry, acid-base theory, non-aqueous systems, and reaction mechanisms. Prerequisite, Chemistry 285.

262/562. ORGANIC CHEMISTRY FOR NON-MAJORS

B

Introduction to the chemistry of carbon compounds. Survey of the principal classes of organic compounds and their reactions with emphasis on the relation between structure and reactivity. Prerequisite, Chemistry 112 or 114. Concurrent enrollment in Chemistry 264/564 is required.

264/564. ORGANIC LAB FOR NON-MAJORS

E-G

Application of the experimental techniques of organic chemistry to the preparation, purification and analysis of organic compounds. Prerequisite, concurrent enrollment in Chemistry 262/562. TuThF.

Credit, 1.

290/590. ADVANCED PHYSICAL CHEMISTRY.

A

A survey of modern physical chemistry with emphasis on the fundamentals of quantum mechanics and statistical mechanics. For students not taking further advanced work in these areas. Prerequisite, Chemistry 286.

800. MASTER'S THESIS.

Credit by arrangement.

900. DOCTORAL DISSERTATION.

Credit by arrangement.

Civil Engineering

140. STATICS.

B

Force systems, friction, first and second moments. Prerequisite, Integral Calculus concurrently.

141. STRENGTH OF MATERIALS I.

C

Simple and combined stresses and strains in tension, compression, and shear; torsion; stresses and deflections in beams. Prerequisite, Statics.

142. DYNAMICS. A
Motions of particles and rigid bodies and the force systems associated with these motions. Prerequisite, Statics.

257. ELEMENTARY FLUID MECHANICS. C
Fundamentals of fluid mechanics including fluid properties, fluid behavior under static and dynamic conditions, and development of basic fluid flow equations. Prerequisite, Statics.

385. SPECIAL PROBLEMS.
Credit by arrangement.

700. SPECIAL PROBLEMS.
Credit by arrangement.

Comparative Literature

202. MODERN EUROPEAN LITERATURE II. A
The development of psychological fiction in Europe since Dostoevsky, concentrating on the synthesis of the Bildungsroman, "development novel," and the Künstlerroman, "artist novel," which examine the background and mission of the intellectually superior and sensitive artist-type.

203. THE EUROPEAN NOVEL: MAN AND SOCIETY. B
In English translation, a number of French, Spanish, German, Russian and English novels of the 17th to 20th centuries, in the context of the consciousness they reflect, describe, and transcend.

890. SEMINAR: THE ULYSSES THEME. C
Intensive, advanced study.

Economics

125. ELEMENTS OF ECONOMICS. A;B
Basic principles which govern the behavior of the American economy. Emphasis on the macroeconomic issues of full employment, price stability and economic growth.

126. PROBLEMS OF THE NATIONAL ECONOMY C;D
Introductory analysis of resource allocation and income distribution in the American economy. Problems of international trade, underdeveloped nations, and the Soviet economy.

201/501. INTERMEDIATE MICROECONOMIC THEORY. A
Microeconomic analysis of consumers, firms, industries, and markets; rational decision making under conditions of certainty; balancing forces in a free enterprise economy.

214/514. MACROECONOMIC THEORY AND BUSINESS CYCLES. B
Formulation and empirical testing of static and dynamic theories of aggregate income, employment, and prices with special reference to the business cycle, growth, and economic forecasting.

232/532. THE STRUCTURE OF AMERICAN INDUSTRY. C
Business enterprise, market competition, and economic development in American industries. The social effectiveness of industries analyzed through measures of industrial structure and market performance.

241/541. LABOR PROBLEMS. D
Background of the labor movement and problems involved in the management-labor relationship and the efforts of management, unions and government to solve them.

551. MATHEMATICAL METHODS IN ECONOMICS. B
The application of various mathematical concepts and techniques of macro-economic and micro-economic analysis. Emphasis on the design and interpretation of mathematical models of economical phenomena. Prerequisite, one year of college mathematics, or permission of instructor.

700. SPECIAL STUDIES IN ECONOMICS. C

Education

*THESE COURSES ARE PROVISIONAL AND SUBJECT TO APPROVAL BY THE UNIVERSITY.

**These courses are experimental (may not be offered more than two consecutive semesters), but carry regular University credit. For a final School of Education course schedule, please call or write:

Dean for Academic Affairs (545-0237)
RE: SUMMER SESSION INFORMATION
School of Education (Rm. 123)
University of Massachusetts
Amherst, Massachusetts 01002

Center for the Study of Aesthetics in Education

*206/506. ROLE OF AESTHETIC EXPERIENCE IN EARLY CHILDHOOD EDUCATION. B
Review of recent basic literature on early childhood development, theory, and research, with particular reference to the relationship between the development of learning competence and aesthetic experience. Individual and group projects centered around identification of a variety of aesthetic experiences which can be supported theoretically as a means of fostering some aspect of the development of young children.

*227/527. CURRICULUM INNOVATIONS IN MUSIC AND SOUND. D
Techniques of including the intuitive, creative needs of music students in curriculum planning, through exploring eight-eight rhythm series, Schillinger theories, computer-generated improvisational materials, and the melodic and harmonic rules of contemporary, commercial music styles. Also, exploration of comparative music and non-traditional sound sources.

**705, Sec. 4. SEMINAR: AESTHETIC RESOURCES FOR TEACHING IN THE INNER-CITY SCHOOL.
Student survey of selected inner-city community and its particular aesthetic resources. Collected data used to form models of multi-art approaches to general music curriculum. Lecture, discussion and field experiences.

Center for Counselor Education

*220. PERFORMANCE CURRICULUM IN HUMAN RELATIONS. E-F
Specific human relations skills, dealt with in an experience and cognitive manner through exercises and class discussion. Training ranges in approach from behavioral to existential. Each student is given the opportunity to try out, use and teach each of the specific skills. TuTh.

577. INTRODUCTION TO COUNSELING. C
Identification of counseling principles applicable to elementary, secondary and college settings. Class develops materials, experimental modules and general format for an understanding of the principles. Permission of instructor.

701, Sec. 1. PRACTICUM IN INDIVIDUAL COUNSELING. A;C
Counseling experience in various settings with intensive supervision. The student spends 120 hours at the placement and meets with other students and supervisors at the University. Permission of instructor.

****705, Sec. 2. SEMINAR: GROUP COUNSELING THEORIES.** B

Permission of instructor.

****705, Sec. 3. SEMINAR: CRISIS IN HUMAN RELATIONS.** D

Permission of instructor.

713. HUMAN APPRAISAL AND EVALUATION E

Analysis of statistical procedures, review of achievement, aptitude and interest tests, test interpretation, case study procedures, test selection and administration, ethical consideration and problems in human assessment. Permission of instructor.

***831. LABORATORY FOR COUNSELING SKILLS.**

The general nature of theory construction, levels of explanation, relationships of philosophy, psychology and sociology, various methods of facilitating human growth and development. Permission of instructor.

834. INTRODUCTION TO BEHAVIOR MODIFICATION. B

Permission of instructor.

910. COUNSELING THEORIES. B

Counseling theory and research evaluation. Methodology, philosophies, ethics, problems, and issues of school counseling. Permission of instructor.

912. OCCUPATIONS AND PLACEMENTS. D

The collection, evaluation and use of occupational, educational, and placement information with individuals and groups of students in school guidance. Permission of instructor.

915, Secs. 1 & 2. GROUP ACTIVITIES. D-E

A guidance study of school groups: group dynamics, discussion techniques, group counseling, sociometric methods, and other school group activities. TuTh. Permission of instructor.

928. INTERNSHIP IN COUNSELING. A

Supervised on-the-job counseling experience. Work includes direct counseling, individual supervisory conferences, writing of case reports and the analysis of taped counseling sessions. Permission of instructor. *Credit, 3-6.*

Center for Humanistic Education

***221/521. STRENGTH TRAINING FOR BEGINNING TEACHERS.** B

Working with teacher, counselor and administrator performance through simulation and videotape feedback. Stress on what kind of "self" school personnel project to their students. School personnel (pre- and in-service) are taught to evaluate themselves in terms of their behavior and to evaluate the responses, feelings and perceptions of students. Permission of instructor.

***222/522, Secs. 1 & 2. EDUCATION OF THE SELF.** C;D

Based on recent techniques and teaching procedures such as those developed by Perls, Brown, Weinstein, Gunther and Rogers. Experiences aimed at the description, analysis and experimentation with their identity. Continuous multi-media documentation of the experiences and their results. Permission of instructor.

Center for Educational Research

***216/516. EVALUATION MODELS.** D

A seminar utilizing the writings of Guba, Stufflebeam, Stake, Pace, Scriven, Bloom, and Hammond. Emphasis on the differing philosophies of evaluation and the variables which determine different models of evaluation.

***355/655. EDUCATIONAL STATISTICS I.** B

Methods for reducing experimental data to a few convenient descriptive terms and for drawing inferences from these terms. Includes elementary descriptive statistics, introduction to computer programming, use of packaged computer programming, and beginning inferential statistics. Basic probability, central tendency (mean, mode, median), variability squared statistics, correlation, regression, and basic inferential statistics (t-test, F-test, confidence intervals). Introductory computer programming in FORTRAN, use of the teletype terminal, use of the keypunch, laboratory exercises in processing educational and psychological data, use of already developed statistical programs (BMD, SPSS).

***E01/686. CLASSROOM EVALUATION.** C

Topics include: What decisions do teachers make? Can evaluation provide useful information for making decisions? Evaluation instruments and procedures. (Writing objectives and items, essay vs. objective test items, testing in individually prescribed instruction, Comprehensive Achievement Monitoring (CAM), interviews, attitude scales, and observations); looking at student attitudes (What does he think about himself? What does he think about his environment?); assembling and administering tests.

***686, Sec. 20. INTRODUCTION TO RESEARCH FOR NON-MAJORS.** A

The elements of research design, together with a survey of statistical techniques from a conceptual standpoint. A paper is required, summarizing research studies in an area of the student's interest.

Center for Leadership in Educational Administration

****E08/686. STRUCTURED EXPERIENCES IN DECISION-MAKING FOR THE SCHOOL ADMINISTRATOR.**

Extensive use of the newly-published UCEA simulation materials. Focus on several administrative roles in an urban setting. TuTh, E-F; F, F.

****E09/686. SURVIVAL TECHNIQUES WITHIN THE EDUCATIONAL BUREAUCRACY.**

Development of coping mechanisms to maintain individual integrity approached both from the viewpoint of teacher and administrator. MW, E-F; F, F

****E10/686. EDUCATIONAL MANAGEMENT BY METAPHOR**

Stresses metaphor as the root of action: the primal assumptions, fantasies, dreams, analogies, modes of relating by which we organize our thinking about ourselves, organizations, education. Verbal, physical, visual and aural modes used to analyze and make explicit (or create) our guiding metaphors and those implicit in existing educational structures. New metaphors are developed, for self and institution, and skills in multiple approaches to metaphoric problem-solving. Metaphors are found and developed to generate new structures and alternatives for education. Permission of instructor. TuTh, 3:30-6.

****E11/686. ORGANIZATIONAL BEHAVIOR IN SCHOOLS.** B

Accomplishing organizational goals through the efforts of others. Emphasis on motivation, behavior, and leadership within educational settings. Application of theories and concepts learned, in an input (theory) — output (application) sequence.

****E12/686. UNDERSTANDING AND IMPLEMENTING CHANGE IN EDUCATION.** A

The problems facing individuals when they initiate change in education. Social and behavioral science frameworks to help

them understand the change process and how to initiate change more effectively, after some initial theoretical inputs. Application of change concepts through various media.

****705. Sec. 6. DEVELOPMENT THROUGH DESIGNING ADMINISTRATIVE DEVELOPMENT PROGRAMS.** B

Developing functional descriptions of the skills required by administrators, procedures for diagnosing individual needs for skills and alternative systems for obtaining those skills. An educational/organizational philosophy-rationale formed as the framework within which these activities take place.

950. FUNDAMENTALS OF EDUCATIONAL ADMINISTRATION. B

Includes structure and organization, decision-making, finance, and personnel.

955. COMMUNITY RELATIONS FOR SCHOOL PERSONNEL. C

The many relationships of educators with persons and groups in the community; power structures, ways to assess public opinion.

956. PRINCIPLES OF SCHOOL LAW. C

Legal aspects of public education relative to pupils, teachers, and school administration.

961. CASE STUDIES IN EDUCATIONAL ADMINISTRATION. A

Development of administrating generalizations by study of actual case experiences, and such means as role playing.

Center for Educational Media and Technology

***235/535. EDUCATIONAL MEDIA, TECHNOLOGY AND SYSTEMS.** A

The characteristics, capabilities and implications of a variety of media for a variety of educational strategies. A survey or introduction for media specialists and a basic course in modern communications media and techniques for other educators.

***360/660. EDUCATIONAL BROADCASTING.** D

Survey of what is available on radio and television for educational purposes. An evaluation of educational broadcasting according to modern educational objectives. An attempt by students and instructor to develop new educational broadcasting concepts.

****E04/686. SPECIAL PROBLEMS: COMMUNICATING IN TODAY'S WORLD.** C

The anatomy of communications as practiced on a person-to-person basis, on a teacher-to-students level and on a mass media-to-public basis. The need for good communicators in education, who will try whole-heartedly to listen to people and to reach people. A survey of the communication effectiveness of educational and commercial TV, radio and newspaper. Some experimentation. Permission of instructor.

***718. WORKSHOP IN EDUCATION TV.** B

A hands-on workshop, designed to familiarize teachers and teacher interns with hardware of television. Using television experimentally to solve educational problems. Permission of instructor.

Center for Foundations of Education

***245/545. PRINCIPLES OF STIMULATING THE EXPLORATION OF VALUES.** B

Various ways of utilizing group dynamics methodology to stimulate value exploration; psychological issues such as the

nature and development of an individual's value structure and the interrelationships of some of the volatile social issues confronting contemporary youth, such as drugs, race, and sex. Especially for those currently working with youth. Permission of instructor.

251/551, Sec. 1. FOUNDATIONS OF EDUCATION. B

Educational classics.

251/551, Sec. 2. FOUNDATIONS OF EDUCATION. C

Critical analysis of basic issues in American education viewed from a social-psychological perspective with emphasis on adult-youth relationships.

251/551, Sec. 3. FOUNDATIONS OF EDUCATION. D

Explores the major criticisms being leveled at education today, and attempts to put them into a philosophic perspective. Tries to separate the criticisms of education from the criticisms of society itself.

251/551. Sec. 4. FOUNDATIONS OF EDUCATION.

Same as 251/551, Sec. 3. MWF, 2:15-4.

881. COMPARATIVE EDUCATION. C

Processes and problems of educational development in selected countries around the world.

Center for Teacher Education

259/559. PRINCIPLES AND METHODS IN TEACHING SOCIAL STUDIES IN ELEMENTARY SCHOOLS. A

Elementary social studies examined in terms of instructional strategies and curriculum practices. Students evaluate various state, commercial and project social studies curricula and secure practical experience in creating a social studies unit.

260/560. THE ELEMENTARY SCHOOL CURRICULUM. B

The elementary curriculum from the standpoint of content and methodology. Emphasis on the unit method and the activity programs.

261/561. PRINCIPLES AND METHODS IN TEACHING READING AND LANGUAGE ARTS IN ELEMENTARY SCHOOLS. C

Approaches to the teaching of reading and language arts in the elementary schools. Innovations in methods and materials presented, demonstrated and discussed.

262/562. PRINCIPLES AND METHODS IN TEACHING SCIENCE IN ELEMENTARY SCHOOLS. D

Aids in preparing pre-service students for teaching science in elementary schools. Methods, materials, and latest curriculum work.

263/563. PRINCIPLES AND METHODS OF TEACHING MATHEMATICS IN ELEMENTARY SCHOOLS. B

Emerging programs, cognitive and affective development, strategies, instructional materials, evaluation and diagnosis. Approximately half the sessions are devoted to group discussions and half to exploration of math concepts via physical materials.

282. PRE-PRACTICE TEACHING PRACTICUM.

A pre-requisite to practice teaching, designed to acquaint the prospective teacher with the role of the teacher. Permission of instructor. *Credit, 1.*

285/585. PRACTICE TEACHING.

Field experience in elementary or secondary classroom teach-

ing. Meets University and State of Massachusetts requirements for certification. Permission of instructor. *Credit, 1-6.*

309/609. PRINCIPLES AND METHODS IN TEACHING SECONDARY ENGLISH. C

An analysis of purposes, problems, issues, methods and materials in the teaching of English at the secondary level. Discussion, lectures, case studies, projects.

310/610. PRINCIPLES AND METHODS IN SECONDARY SOCIAL STUDIES METHODS. D

A critical examination of various possible goals and strategies for secondary school social studies instruction aimed at helping the prospective teacher develop a defensible rationale for his teaching. A pre-service course.

311/611. TEACHING MATHEMATICS IN THE SECONDARY SCHOOL. B

Through consideration of the nature and content of mathematics, learning strategies, and values of self and society, the pre-service mathematics teacher formulates his own philosophy and rationale for education in mathematics.

312/612. TEACHING SCIENCE IN THE SECONDARY SCHOOL. A

Through consideration of the nature and content of science, learning strategies, and values of self and society, the pre-service science teacher formulates his own philosophy and rationale for education in science.

****E05/686. GAMES AND SIMULATION DEVICES FOR CLASSROOM TEACHERS. C**

Practical applications of games and simulation devices in classroom situations. Analysis of applicability to different classroom levels. The role of games and simulation models in our society.

****E07/686. CONTENT OF EMERGING PROGRAMS IN ELEMENTARY SCHOOL MATHEMATICS. C**

A seminar. Emphasis on the exploration and understanding of the mathematical concepts considered, and how those concepts are treated in the elementary school.

646. WORKSHOP IN SCIENCE EDUCATION. B

Group study of the curriculum for average and low-average students in high school science. Experimental curricular materials are developed.

****705, Sec. 5. SEMINAR: IMPROVING THINKING IN SOCIAL STUDIES CLASSROOMS. B**

An examination and evaluation of the literature on reflective thinking, critical thinking, discovery, concept learning, the learning of generalizations, etc., with a view to improving teaching.

709. SEMINAR IN READING THEORETICAL MODELS. A

A brainstorming seminar. Outstanding authorities in the field read and discussed in terms of providing alternatives to the reading establishment.

784. INDIVIDUAL CASE STUDIES OF READING PROBLEMS. B

An in-depth case study of a student with a reading problem. Not a diagnosis course.

812. NEW DEVELOPMENTS IN SECONDARY SCHOOL ENGLISH. B

A critical evaluation of current trends in secondary school English programs. Permission of instructor.

Center for Urban Education

***267/567. URBAN COMMUNITY RELATIONS. C**

How communities in the inner city are organized. How a group or city organizes to improve its own public services and those of the entire city. Community relations between various groups and their relationship between the schools and general urban problems.

***313/613. INTRODUCTION TO URBAN EDUCATION. B**

The individual in the inner city, the family, the community, the city, and the educational problems of the inner city.

Center for Vocational/Technical Education

372/672. PRINCIPLES AND PRACTICES OF VOCATIONAL EDUCATION. A

Emphasizing secondary and post-secondary programs, and the relationship of vocational education to the total educational program. Permission of instructor.

375/675. PRINCIPLES AND METHODS OF AGRICULTURAL EDUCATION. B

Special methodology in teaching agriculture. Microteaching section included. Permission of instructor.

Early Childhood Education Program

***291/591. EARLY CHILDHOOD EDUCATION MOVEMENT. D**

Contemporary purposes, programs, and problems of early education examined from a historical and philosophical perspective.

Other Non-Center

****E02/686. LEGAL RIGHTS OF TEACHERS WITHIN SCHOOLS. E-F**

Does a teacher surrender some of his rights when carrying out his professional roles? Are there legal restrictions on his personal behavior? May he carry on political activities or give advice concerning the draft? Seminar on these and other behaviors of teachers within the schools, considered in light of legal and philosophical principles. TuTh.

****E03/686. TEACHERS AS CITIZENS: THE CIVIL RIGHTS OF TEACHERS OUTSIDE THE CLASSROOM. E-F**

The areas in which teachers' legal rights are restricted by most school systems. Are these restrictions justified? Or should teachers have the same rights of free speech, dress, political action and personal behavior as general citizens? How these problems are typically handled. Alternative strategies for protecting teachers' rights. TuTh.

****705, Sec. 1. SEMINAR: CRITICAL VARIABLES IN COMPENSATORY EDUCATION: DEVELOPING AFFECTIVE COMPETENCE. C**

Review of the basic literature relative to the affective domain and its implication for the development of general learning competence. Relationship of affective development to psychomotor, perceptual, and cognitive capacities; their implications for curriculum development and teacher training programs. Permission of instructor.

***765. ORGANIZATION FOR CURRICULUM DEVELOPMENT. D**

Procedures and criteria for curriculum development. Deter-

mining what the school should seek to accomplish, creating and organizing learning opportunities, and evaluating the effectiveness of curricula, considered in a small group setting.

- *766. CURRICULUM DEVELOPMENT: THEORY AND RESEARCH. C
The needs of children and society; modern programs; procedures for developing and improving curricula. Includes clinical involvement in curriculum development at schools participating in the Center for Study of Educational Innovations.

Electrical Engineering

385. SPECIAL PROBLEMS. B
An individual investigation carried out under the supervision of an interested staff member, or a class study of recent advances and current problems in a specialized field. Prerequisite, permission of instructor. *Credit 1-4.*

- . 700. SPECIAL PROBLEMS.
Hours by arrangement.

English

125. MASTERPIECES OF WESTERN LITERATURE. A;C
Selected masterpieces, from Homer and the Bible to James Joyce or Robert Frost. Aims to enrich the student's appreciation of literary values and develop his understanding of abiding human issues. Prerequisite, English 112 or 113.

126. MASTERPIECES OF WESTERN LITERATURE. B
Same as 125, with different works.

202. MAJOR BRITISH WRITERS. D
A selection of leading British writers from Pope to T. S. Eliot.

216. CHAUCER. B
The major works, especially *Troilus* and selected *Canterbury Tales*, as combinations of medieval art and thought with pre-Renaissance motifs and Chaucer's genius for realism.

221. SHAKESPEARE. A
Examination of Shakespeare's dramatic art and leading ideas through careful study of approximately a dozen plays.

- 221a. SHAKESPEARE. B
In-depth study of the dramaturgy of one of the tragedies, title to be announced. June 28-July 16. *Credit, 1.*

222. SHAKESPEARE. D
Follows the same method as English 221 but with a different group of plays. Either semester or both may be taken for credit.

233. SEVENTEENTH CENTURY ENGLISH LITERATURE. G
Selections from the poetry and prose of the late Renaissance in England, including works by such authors as Donne, Jonson, Browne, Burton, Marvell, and Milton. Emphasis on the challenge of the new science to the traditional humanism.

236. MILTON. C
Development of the mind and art of Milton as a figure of the English Reformation and the late Renaissance, with emphasis on *Paradise Lost*.

261. THE MODERN NOVEL: 1890-1930. E
The expanding form of the novel and increasing interest in social causes as exhibited in some twelve novels.

263. MODERN BRITISH AND AMERICAN DRAMA. A
Representative dramatists since the late nineteenth century, including Shaw, O'Casey, O'Neill, Williams, and others. Emphasis on changing trends in twentieth-century dramatic art.

275. MAJOR AMERICAN WRITERS. D
Emerson, Hawthorne, James, and any of the following by announcement each semester: Howells, Adams, Dos Passos, Lewis, Anderson, Fitzgerald, Hemingway.

276. MAJOR AMERICAN WRITERS. F
Thoreau, Melville, Whitman, and any of the following by announcement each semester: Cooper, Poe, Dickinson, Twain, Crane, Dreiser, Faulkner, Wolfe.

321. STRUCTURE OF MODERN ENGLISH. F
Introduction to applied English linguistics; sounds, forms, and word-order of modern Standard American English; modern grammatical theory.

380. LITERATURE AND FILM. D
Aspects of literature as related to film.

381. ASPECTS OF BRITISH LITERATURE. B
An aspect of British literature. The specific subject is announced at pre-registration.

382. INDIVIDUAL BRITISH AUTHORS. C
An intensive study of one or two British authors. The specific authors are announced at pre-registration. Possible authors: Spenser; Carlyle; Tennyson and Arnold; Dickens; Shaw and Joyce.

383. SIGNIFICANT THEMES IN AMERICAN LITERATURE. E
An aspect of American Literature. The specific subject is announced at pre-registration. Possible topics: the West in American Literature; the Adamic Theme; New England Transcendentalism; Literary Naturalism.

384. INDIVIDUAL AMERICAN AUTHORS. G
An intensive study of one or two American authors. The specific authors are announced at pre-registration. Possible authors: Twain and James; Hawthorne and Melville; Faulkner; Hemingway and Fitzgerald.

- 384a. INDIVIDUAL AMERICAN AUTHOR: HAWTHORNE. C
A concentration on selected major tales. June 28-July 30. *Credit, 2.*

700. SPECIAL PROBLEMS.
For students wishing to do special work not covered by courses listed in the curriculum. Permission must be secured from the Director of Graduate Studies, and the instructor, who will supervise and evaluate the work.

702. OLD ENGLISH. B
Introduction to Old English.

708. CHAUCER. A
Chaucer's *Canterbury Tales* and the critical problems implicit in his works.

721. THE DEVELOPMENT OF THE ENGLISH NOVEL. C
Readings in the English novel to the late 19th Century, from Richardson to Conrad, with special attention to some ten representative novels.

732. SHAKESPEARE. B
Close examination of Shakespearian plays representing the characteristic of his dramatic art.

740. LITERATURE OF THE RESTORATION AND 18TH CENTURY. E

Readings in English poetry and prose from Dryden to Burns, emphasizing the major writers and including representative plays.

746. LITERATURE OF THE VICTORIAN AGE. F

Readings in the chief poets and prophets of the Victorian age, with emphasis on Browning, Tennyson, Carlyle, Newman, Mill, Ruskin, Arnold, and Pater.

753. AMERICAN ROMANTICISM. C

The development of American romanticism, under European influence, stressing Cooper, Emerson, Thoreau, Poe, Hawthorne, Whitman, and Melville.

776. MODERN FICTION. D

Intensive study, including papers and oral reports, of important works by James, Conrad, Joyce, Lawrence, Faulkner and other masters of the modern novel between about 1900 and 1940.

777. MODERN POETRY. A

The growth and development of modern poetry and English from 1912 to World War II, including Yeats, Stevens, Frost, Eliot, Pound, Williams; also Cummings, Hughes, Moore, Auden, Crane, Robinson. Brief background materials out of Hopkins, Dickinson and Hardy.

780. IMAGINATIVE WRITING. B

Writer's workshop, with emphasis upon poetry. May be repeated by candidates for the M.F.A. for a total of 12 credits.

800. SEMINAR.

Topic to be announced. Credit by arrangement.

Journalistic Studies

280/580. THE COMMUNICATION PROCESS. B;C

The way the communication process has been organized in our society through mass communication media. Permission of instructor. June 28-July 16.

Entomology

126. GENERAL ENTOMOLOGY.

A survey of the entire field of entomology; structure, development, evolution, classification, biology, and natural control of insects. Formation of an insect collection. B-MWF; Lab: D-E, MW.

150. PRINCIPLES OF APPLIED ENTOMOLOGY.

A broad basic course for both majors and non-majors. General principles of pest control are stressed instead of "how-to-do-it" details. B-MWF; Lab: D-E, TuTh.

279. ANIMAL ECOLOGY.

Relations of animals to their physical and biotic environment, with observations and quantitative measurement of these factors and responses in the field and laboratory. Prerequisite, a course in entomology or zoology. C-MWF; Lab: F-G, TuTh.

Forestry and Wildlife

225/525. THE ELEMENTS OF FOREST MENSURATION.

The measurement of trees, stands, and forest products; field-office practice in timber estimating and log scaling; collection and compilation of forest inventory data. 3 40-hour weeks. Hours by arrangement.

French

110. ELEMENTARY FRENCH. A;B

For those who have no previous creditable training in French. Intensive practice in the four language skills. Sequence: French 110, 120, 130, 140.

130. INTERMEDIATE FRENCH: FRENCH LIFE AND CULTURE. A;B

Intensive review and study. Readings in modern French literature. Sequence: French 130, 140. Prerequisite, French 120 or equivalent.

133. INTERMEDIATE FRENCH: FRENCH LIFE AND CULTURE.

Same as French 130 but meeting more frequently. For students who need extra help. B daily, C-MW.

140. INTERMEDIATE FRENCH: FRENCH LIFE AND CULTURE. C

An introduction to French culture through selections from 20th century literature. Emphasizes reading and discussion.

324/624. PHILOSOPHERS AND MORALISTS: DESCARTES, PASCAL, LA ROCHEFOUCAULD AND OTHERS. B

The writers whose ideas are most important in classical thought.

360. THE FRENCH THEATER OF THE TWENTIETH CENTURY. A

French theater from Scribe to the present.

409. GRADUATE READING COURSE. B

Designed for graduate students preparing for their M.A. or Ph.D. reading examination.

No previous knowledge of French required. No credit.

600. COURS DE STYLE. C

Syntax and idiom at an advanced level. Credit, 2.

General Business and Finance

201. CORPORATION FINANCE. B;D

Corporate financial behavior; appraisal of factors affecting decision-making regarding sources and application of funds; introduction to capital budgeting and cost of capital problem. Prerequisite, Accounting 125 or permission of instructor.

258/658. QUEUEING THEORY MODELS. A

Development and application of models of waiting lines, including single and multiple channel and single and multiple stage queues for various priorities and queue disciplines. Prerequisites, General Business 253 and General Business 254, or permission of instructor.

260. LAW I. A;C

Nature of law and judicial process; the concept of contract; economic functions and consequences of contracts.

264/564. LAW OF URBAN DEVELOPMENT. A

The study of legal problems generated by the changing urban environment. Areas of study include the law of race relations, poverty and welfare, land use and land use planning, urban and regional planning. Prerequisite: General Business 260 or equivalent.

265. BUSINESS AND ITS ENVIRONMENT. A
Theories and doctrines relating the firm to its environment. Aggregate legal, social, political, and economic factors are integrated in a rigorous examination of competing concepts of the role of business in society. Prerequisite, senior standing or permission of instructor.

270. REAL ESTATE. C
A comprehensive survey of real estate principles and practices; mechanics of the real estate market and economic and legal factors that influence it.

272/572. SEMINAR IN URBAN AND REGIONAL STUDIES. D
Analysis of the dimensions of urban growth and change; discussion of the reasons behind, and the problems growing out of the economic growth and stagnation of cities and regions. Prerequisite, General Business 270, or Econ. 281, or Econ. 282, or permission of instructor.

456. QUANTITATIVE METHODS I. B
Business applications of algebra including ratios, proportions, logarithms, partial fraction, series, limits, convergence, combinations, and permutations. Basic concepts of differential and integral calculus. Discrete and continuous probability.

457. QUANTITATIVE METHODS II. C
Laws and theories of probability and statistics, with applications in business and economics. Topics include probability models, sampling distribution, estimation, hypothesis testing, and decision theory.

700. PROBLEMS IN BUSINESS ADMINISTRATION.
Independent study and research on selected problems in Business Administration. Permission of instructor and the dean required.

799. SEMINAR IN BUSINESS ADMINISTRATION C
The relationship of business and management to the environment in which they operate.

808. ADVANCED TOPICS IN BUSINESS ADMINISTRATION.
An advanced topics section is available in each General or Functional Field of Study, the purpose of which is to facilitate investigation of current literature and research effort in these areas.

810. TUTORIAL STUDY IN BUSINESS ADMINISTRATION.
Individualized secondary or applied research in special areas of guided doctoral-level investigation, permissible with consent of mentor when a suitable course in such areas is not available and the studies are related to the career-goal of the scholar.

Geography

385. URBANIZATION IN WESTERN MASSACHUSETTS.
An experimental approach to the teaching of economic geography. Focus is on a phenomenon familiar to the average student (urban places) in a district (Massachusetts) known to the bulk of the course. Emphasis on the northward advance of Megalopolis in the Connecticut Valley, seen in its historical and current aspects. Treatment of standard themes such as Central Place Theory, Industrial Location Factors, Sequent Occupance and The Urban Frontier away from standard text book discussions. Field trips for student collection of data for subsequent individual and group analysis. B-C, MWF.

Credit, 2.

386. REGIONAL DEVELOPMENT OF SOUTHEAST ASIA. A
An experimental approach, using available field and census data for individual and group analysis, and periodical literature. Emphasis on facets of modernizing economies rather than on traditional society. *Credit, 2.*

155. INTRODUCTION TO HUMAN GEOGRAPHY. B
The spatial attributes of human societies; population, cultural characteristics, settlement, and economic activity. Selected regional case studies.

260. ECONOMIC GEOGRAPHY. D
The distribution, production and utilization of the natural resources and commodities on which man's livelihood depends and the problems which they pose.

German

110. ELEMENTARY GERMAN. A
Conversation, reading, grammar and composition. 2 laboratory hours by arrangement.

130.140. INTERMEDIATE GERMAN. B;D
Reading, conversation, composition. Grammar review. Prerequisite, German 120.

277. SURVEY OF GERMAN LITERATURE I. C
German literature from the Middle Ages to the Age of Enlightenment. Prerequisite, junior standing and German 251 or 279; or by special permission. One additional hour by arrangement.

409. GRADUATE READING COURSE. F
Designed for graduate students preparing for their M.A. or Ph.D. reading examination. No previous knowledge of German required. *No credit.*

782. SPECIAL TOPICS IN PHILOLOGY AND MEDIEVAL STUDIES. F

786. SPECIAL TOPICS IN THE LITERATURE OF THE TWENTIETH CENTURY. C

Geology

101. PHYSICAL GEOLOGY.
The nature and origin of the landscape features of the earth, and their underlying rocks and structures, including the work of rivers, waves and currents, wind, and glaciers; and the role of earthquakes, volcanoes, and the processes of mountain-building. B-M TuWTh; Lab F-G, MW or TuTh. Field trips.

388. SPECIAL PROBLEMS. *Credit, 1-6.*

389. FIELD PROBLEMS. *Credit, 2-6.*

Government

100. AMERICAN GOVERNMENT. B
Political institutions and processes, as illustrated by the American governmental system.

150. EUROPEAN GOVERNMENTS. C
A survey of the politics and governmental institutions of Great Britain, France, Germany and Soviet Russia.

202. MODERN POLITICAL THOUGHT. F
The development of political thought and its relation to cultural and institutional growth from the rise of the modern state to the present.

218. POLITICAL PARTIES AND ELECTIONS. C
The American political process, with emphasis on parties, pressure groups, and public opinion.

220. MUNICIPAL GOVERNMENT. F
A survey of the governmental structure and function of American municipalities.

237. GOVERNMENT AND POLITICS OF CHINA AND JAPAN. A
An analysis of the political ideologies, party movements, governmental institutions, and major domestic and foreign policies of contemporary China and Japan. Prerequisite, Government 150 or 160-161 or permission of instructor.

242. THE POLITICS OF SUB-SAHARAN AFRICA. D
The organization and processes of African politics, centering on the general political problems facing contemporary African governments. Prerequisite, permission of instructor.

254. INTERNATIONAL RELATIONS. C
The nation-state system and conceptions of national interest in modern world politics. Forms and distribution of power. Making of foreign policy and adjusting international conflict. Prerequisite, Government 150 or 160-161, or History 101 or permission of instructor.

290. CONSTITUTIONAL LAW. B
An historical study of the United States Constitution as interpreted by decisions of the Supreme Court. Prerequisite, Government 100 or 160-161, or permission of instructor.

303. AMERICAN POLITICAL THOUGHT. E
The development of American political thought from colonial times to the present.

History

100. HISTORY OF WESTERN THOUGHT AND INSTITUTIONS. A
The historical development of the western European countries, their ideas, and institutions.

150,151. THE DEVELOPMENT OF AMERICAN CIVILIZATION. B(150); C;D (151)
A survey of the American national growth. Either may be elected independently.

210. EUROPE, 1870-1918. E
Internal developments of the principal countries; a detailed study of conditions and diplomacy which led to the World War; military and diplomatic history of the war years.

214/514. THE HISTORY OF RUSSIA. C
Political, economic, social and intellectual development of Russia during the Tsarist era.

215/515. THE HISTORY OF RUSSIA. D
Political, economic, social and intellectual development of Russia. Origins of Russian Marxism and the Soviet period.

308/608. HISTORY OF BRAZIL, 1822-1970. B
The persistence of colonial institutions after Brazilian independence. The gradual evolution of the abolition movement. The search for national identity. Brazil and the "Third World." The present military dictatorship and the prospects for structural change. Prerequisites; History 120-121 or upper division standing.

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324/624. THE PROGRESSIVE AGE, 1900-1920. C
The political response to the changing economic and social conditions in American life.

327/627. HISTORY OF AMERICAN THOUGHT AND CULTURE. B
The basic strands of American thought and their reflection in American culture. The period after 1965.

332/632. THE SOUTH IN AMERICAN HISTORY. D
From early settlement to contemporary regional problems.

339/639. UNITED STATES SINCE PEARL HARBOR. C
Political, economic, and social currents since World War II.

389. BLACK WRITERS OF THE TWENTIETH CENTURY. E
The Harlem Renaissance; the black cultural and literary flowering of the 1920s. Reading of about a book a week, active participation in discussion, and writing a 10-15-page paper.

391. SOCIAL MOVEMENTS BEFORE THE CIVIL WAR. C
The various social movements in a larger perspective. The class will decide what specific movements will be studied in depth; among possibilities are reform movements, such as antislavery, temperance, peace, and women's rights, or communitarian movements such as Mormonism and Shakerism.

735. TOPICS IN THE TWENTIETH CENTURY. G
The nature of Progressivism, American involvement in World Wars I and II, the character of recent American politics, and cultural and economic changes since the turn of the century.

769. SEMINAR IN AMERICAN INTELLECTUAL HISTORY SINCE THE CIVIL WAR. F
Training in historical research. Prerequisite, permission of instructor.

Industrial Engineering

256/556. DATA PROCESSING AND INFORMATION HANDLING SYSTEMS. B
Principles and applications of data processing and electronic computer systems for use by Industrial Engineers as a management tool for control and decision-making. Prerequisite, permission of instructor.

271/571. BASIC PROBABILITY FOR ENGINEERS. A
A basic study of probability theory including: sample spaces; discrete and continuous random variables; functions of random variables; marginal and joint probability, density and cumulative distribution functions; and moments. Prerequisite, Math. 124.

354/654. INDUSTRIAL ENGINEERING ECONOMICS. A
An introduction to economic problems faced by the industrial engineer: comparison of alternatives in engineering projects, breakeven and minimum cost points, and economic selection and replacement of structures and machines. Decisions made in the face of risk and uncertainty discussed extensively. Instruction wherever advantageous by the case method. Prerequisite, I.E. 272.

379/679. OPERATIONS RESEARCH I. C
The theory and application of quantitative decision making techniques to a wide variety of planning and operational problems. Examples from industrial and governmental settings. Methodology of deterministic modeling: classical optimization, linear

programming, dynamic programming, search techniques, and combinatorial problems. Credit not allowed students who have taken Management 253, 254. Prerequisite, calculus.

700. SPECIAL PROBLEMS IN INDUSTRIAL ENGINEERING

Special investigational or research problems in Industrial Engineering, the scope to be varied to meet specific conditions.

720. ADVANCED TOPICS IN OPERATIONS RESEARCH I.

B
Formulation and rigorous theory of linear programming. Includes linear programming models, simplex and revised simplex algorithms, duality, parametric procedures, interpretation of results and the decomposition principle.

800. MASTER'S THESIS. Credit, 6.

900. DOCTORAL DISSERTATION. Credit by arrangement.

Italian

126. INTENSIVE ELEMENTARY ITALIAN. A
For motivated students with no previous creditable training in Italian. Intensive training in all language skills. Equivalent of 110, 120. Includes lab, C-MWF. Credit, 6.

409. GRADUATE READING COURSE. B
Designed for graduate students preparing for their M.A. or Ph.D. reading examination. No previous knowledge of Italian required. No credit

Linguistics

201/501. GENERAL LINGUISTICS. B;G
A comprehensive treatment of the field of linguistics. The nature of language. Some language universals. Phonology, syntax, and other aspects of modern language theory. By permission may be counted for major credit in English, German, Romance Languages, Speech, and Psychology.

202/502. PHONOLOGICAL THEORY. C
Introduction to the theoretical and psychological bases of contemporary phonological analysis; the concepts of the distinctive feature analysis. Prerequisite, Linguistics 201 or permission of instructor.

203/503. SYNTAX. E
An examination of the methods of word and sentence formation; the notions of grammaticality and of well-formed utterances. Prerequisite, Linguistics 201 or permission of instructor.

Management

201. PRINCIPLES OF MANAGEMENT. A;B
Fundamental principles and practices of the managerial process in business enterprises.

214. PERSONNEL MANAGEMENT. B
Principles and policies followed by management in recruitment, development, direction, and control of personnel.

231. ADMINISTRATIVE THEORY. A
Principles of administration, modern organization theories, specialization, functionalization, coordination, planning, and control, authority, status, leadership, decision-making, communication, and power-structuring. Prerequisite, Management 201.

247. PRODUCTION MANAGEMENT I. C
Basic principles of production management. Use of statistical, mathematical, and simulation methods in production, or operations, aspect of an organization's activities. Prerequisite, Management 201.

341. MANAGEMENT DECISION SIMULATION. D
Participation in management of a firm in a simulated industry. Students, organized into management teams, apply their knowledge of business administration and economics in a competitive struggle for profit and market position. Prerequisite, senior standing and permission of instructor.

342. PLANNING AND CONTROL SYSTEMS. F
Systems coordinating sales, production, finance and other business functions and producing information required for adjustment and reformulation of plans over time. Both single-use and continuous-use plans. Special attention to design of organization structure and development of control criteria. Prerequisite, senior standing.

345. MANAGEMENT-UNION RELATIONS II. A
Problems in the interpretation and administration of collective bargaining agreements are studied by use of the case method of analysis. Prerequisite, Management 344 or permission of instructor.

371. BUSINESS POLICY AND STRATEGY. C
An integrating course embracing all organic management functions. Cases are used as subjects for analysis and systematic decision-making practice. Prerequisites, Management 201 and senior standing.

391. SEMINAR IN ADMINISTRATION. E
Advanced study and individual research in theory and practice of administrative organization and behavior. Prerequisite, senior standing and permission of instructor.

400. COMPUTER METHODS FOR BUSINESS. E
Current and potential management usage of computers, basic computer programming and computer-based information systems in management decision making.

440. MANAGERIAL ECONOMICS
Micro-economic analysis and application to business decisions such as: cost and profit analysis; demand and pricing; investment analysis and capital budgeting; and economic forecasting. TuTh, 7-9:30 p.m.

700. PROBLEMS IN BUSINESS ADMINISTRATION. F
Independent study and research on selected problems. Permission of instructor and the dean required.

751. ORGANIZATION THEORY. B
Examination and evaluation of the various theories of organization and the research underlying each theory to establish foundation for explanation and critical analysis of administrative processes.

752. BUSINESS POLICY.
Capstone course requiring application of knowledge, theories, and techniques derived from previous courses, using integrative cases and empirical observations to formulate improved policies and plans. TuTh, 7-9:30 p.m.

Marketing

201. FUNDAMENTALS OF MARKETING. C
The role of marketing in our economic and social structure. The planning, distribution, pricing and promotion of goods and serv-

ices to consumer and industrial markets, viewed as internal activities of the firm, and also as they are shaped by environmental forces. Prerequisites, Econ. 125, Psych. 101, Soc. 101, or permission of instructor.

210. **BUYER BEHAVIOR.** C
Analysis of buyer motivation and buying behavior, including explanatory theories of consumer market behavior and models of the decision-making process for winning patronage. Prerequisite, Marketing 201 or permission of instructor.

212. **MARKETING RESEARCH.** D
The systematic gathering, recording and analyzing of data about problems relating to the marketing of goods and services. Individual case study and research projects. Prerequisites, Marketing 201 and Statistics 121, or permission of instructor.

216. **MARKETING MANAGEMENT.** B
An advanced understanding of the nature and problems of marketing management, focusing on the process of marketing management, the environments facing the marketing manager, and the tools available for environmental analysis and the control of marketing activities. Prerequisite, Marketing 201 or permission of instructor.

222/522. **MARKETING COMMUNICATIONS.** E
Development of effective marketing communication strategies based upon an understanding of the characteristics of audiences. Conceptual material from communications theory. Prerequisite, Marketing 201 or permission of instructor.

730. **SEMINAR IN MARKETING PROBLEMS AND ISSUES.** D
Selected areas of pronounced and current interest in the field of marketing. Topics include marketing and public policy, buyer behavior research, and marketing communications. Prerequisite, BA 722 or equivalent.

Mathematics

100. **MATHEMATICS IN THE MODERN WORLD.** B
A cultural and historical presentation of some mathematical ideas to demonstrate both the scientific and the humanistic value of the subject.

110. **ELEMENTARY TECHNIQUES OF MATHEMATICS.** A;B;C
Some basic techniques including sets, logic, numbers, counting, probability, functions, and graphs. A student cannot receive credit for this course and either of the courses 111 or 112.

123. **ANALYTIC GEOMETRY AND CALCULUS I.** A;B;C
Introduction to analytic geometry, functions and graphs, continuity, limits, derivatives of algebraic functions, maxima and minima, primitives. Prerequisites: high school algebra and plane geometry.

124. **ANALYTIC GEOMETRY AND CALCULUS II.** A
Integrals and applications; trigonometric, logarithmic, and exponential functions; techniques of integration. Prerequisites: Math 123 and trigonometry.

151. **BASIC CONCEPTS OF ALGEBRA.** B
The real numbers as a field. Linear and quadratic equations and inequalities. Systems of linear equations and inequalities. Congruence. Complex numbers. Polynomials. Algebraic structures.

Functions. Highly recommended for prospective elementary school teachers. Prerequisite, Mathematics 111.

173. **ANALYTIC GEOMETRY AND CALCULUS III.** C
Infinite sequences and series; vectors; polar, cylindrical and spherical coordinates; conic sections; vector-valued functions. Prerequisite: Math 124.

174. **ANALYTIC GEOMETRY AND CALCULUS IV.** A
Functions of several variables; partial derivatives; multiple integrals; Green's Stokes', and Gauss' Theorems. Prerequisite: Math 173.

200. **FUNDAMENTAL CONCEPTS OF MATHEMATICS.** C
Non-axiomatic propositional calculus (with truth tables), basic quantification theory and set algebra. Binary relations, equivalence relations, partitions, functions. Development of the basic algebraic and topological features of the real numbers from the axioms for a complete ordered field. Prerequisite, permission of instructor.

325. **INTRODUCTORY MODERN ANALYSIS I.** B
Basic topology of Euclidian n-space. Convergence of sequences and sequences of functions. Continuous functions; local and global properties. Prerequisites, Mathematics 200 and 174.

700. **SPECIAL TOPICS.**
To be announced.

Statistics

121. **ELEMENTARY STATISTICS.** C
Nature of statistics; description of data; sample distribution; statistical theories and dispersion procedures; regression and correlation, time series. Not open to students who have completed Stat. 315, Psych. 241 or 245, or Soc. 247.

Mechanical and Aero-Space Engineering

135. **INTRODUCTION TO MATERIALS SCIENCE.** A
The atomic and molecular phenomena responsible for the behavior of materials. The relationship between the atomic structure of materials and their behavior is emphasized. Prerequisite, Chem. 112 or 114.

137. **INTRODUCTION TO MATERIALS SCIENCE LABORATORY.**
Laboratory work to illustrate the concepts and principles of materials science. Prerequisite, MAE 135 concurrently. Lab. E-F, MW. Credit, 1.

144. **MECHANICS I.** B
Elements of statics and strength of materials. Prerequisite, integral calculus concurrently, Physics 161.

145. **MECHANICS II.** C
Continuation of strength of materials; elementary kinematics of mechanisms and dynamics of particles and rigid bodies. Prerequisite, MAE 144.

163. **THERMODYNAMICS.** B
The laws of thermodynamics are introduced and applied to various energy-transforming devices. Property relations. Emphasis on the science of thermodynamics, providing a background for further study in those areas that involve thermodynamic principles. Prerequisites, Physics 162, Mathematics 173.

246. MECHANICS III. A
Advanced topics in dynamics and strength of materials. Prerequisite, MAE 144.

264. THERMODYNAMICS II. C
Application of the laws of thermodynamics to energy conversion devices. Introduction to irreversible thermodynamics. Prerequisite, MAE 163.

267. MECHANICAL AND AERO-SPACE ENGINEERING LABORATORY I.
Calibration and application of instruments used in the testing of mechanical engineering apparatus. Introduction to the theory of experimentation. Prerequisite, MAE 163, B, MWF; Lab, E-G, MTh.

303/603. THERMODYNAMICS. A
Review of classical thermodynamics and conventional energy conversion. Statistical thermodynamics. Introduction to irreversible thermodynamics and direct energy conversion. Prerequisite, graduate standing or permission of instructor.

307/607. ADVANCED DYNAMICS. D
Advanced dynamics of particles, systems of particles, variable mass systems, and rigid bodies. Gyroscopic motion. Rotating and accelerating frames of reference. Use of energy methods. LaGrange's equations, Hamilton's principle, and Eulerian angles in engineering problems. Prerequisite, graduate standing or permission of instructor.

385. SPECIAL TOPICS.
Special study or project work leading to a written or oral report. Admission by permission of instructor. May be repeated for credit.

700. SPECIAL PROBLEMS IN MECHANICAL AND AERO-SPACE ENGINEERING.
Special investigational or research problems, the scope to be varied to meet specific conditions. Prerequisite, as required by the problem.

790. SPECIAL PROJECT.

Microbiology

140. BIOLOGY OF MICROORGANISMS. B
General considerations of the microbial world, including history, structure, growth, ecology, physiology, pathogenesis, and microbial genetics. Lectures supplemented with visual aid material.

Military Science

111. AMERICAN MILITARY HISTORY.
American Military History from the Revolutionary War to the Vietnamese War with emphasis on the results of effective leadership, application of the principles of war, tactical lessons learned and the effect of guerrilla tactics on present day warfare; leadership laboratory, 2 class hours; 1 lab period.

Credit, 1.

Music

101. INTRODUCTION TO MUSIC. B
Open to all students not majoring in music. Previous musical training is not required. Basic music materials, principles of design, and cultural significance of representative works from the Ninth Century to the present are studied and discussed.

Credit, 1.

120. CLASS PIANO. D

217/517. CONTEMPORARY TECHNIQUES. C
The examination of melody, rhythm, harmony, and form in 20th Century music. Analysis, listening, and written assignments. Prerequisite, Music 114.

Credit, 2.

303. HISTORY OF OPERA. C
History of Opera from the late 16th to the present century. Prerequisite, permission of instructor.

700. SPECIAL PROBLEMS. *Credit by arrangement.*

701. SEMINAR IN MUSICOLOGY. A
Materials and methods of systematic and historical musicology. Specialized topics investigated each semester. The application to different problems of various subjects such as acoustics, aesthetics, analysis. May be repeated for credit with varying content, as advised.

716. ANALYSIS OF MUSIC LITERATURE. B
1890—PRESENT.

742. RESEARCH IN MUSIC EDUCATION.
Individual research projects in selected areas of Music Education.

Nursing

110. FUNDAMENTALS OF NURSING.
Aims at acquisition of beginning knowledge and skill considered basic to an effective nurse-patient relationship as well as technical skills. Selected experiences in the nursing care of the adult in a health agency. Prerequisite, Nursing 100. June 14-July 16.

Credit, 4.

111. FUNDAMENTALS OF NURSING
Continuation of Nursing 110. Prerequisite, Nursing 110. July 19-August 20.

Credit, 4.

301. NURSING IN THE COMMUNITY.
Application of basic concepts of public health and public health nursing to the care of individuals, families and community groups. Correlated practicum provides experience in the care of selected individuals, families and groups served by official and non-official public health nursing services. Prerequisites, Nursing 200, 210.

Credit, 6.

Nutrition and Food

352/652. HUMAN NUTRITION.
Absorption, utilization and interrelationship of food nutrients. Factors and critique of methods for determining nutrient requirements. Prerequisites, Chem. 220 and permission of instructor. July 19-August 6, 9 a.m. - 12.

373/673. NUTRITION DURING GROWTH AND DEVELOPMENT.

Nutrition as it affects physical growth and development. Criteria for evaluating nutritional status of children. Prerequisite, NF 127 or 352. August 9-August 27, 9 a.m.-12.

389/700. THE GHETTO FAMILY. B;C;D
The course deals with the family relationships and styles of life of lower-status black and white families. July 19-August 16.

Philosophy

105. INTRODUCTION TO PHILOSOPHY. C;F
An introduction to some of the most important of the general questions, ideas, theories, and methods of inquiry which have given direction to Western thought.

110. ETHICS. D
An examination of classical and contemporary theories concerning policy formation and the justification of personal decisions and ways of life.

125. INTRODUCTION TO LOGIC. B
An inquiry into the nature of critical thinking, including the functions of language, the structure of deductive arguments, and a glimpse at inductive methods.

161. HISTORY OF PHILOSOPHY—ANCIENT AND MEDIEVAL. B
The development of Western thought from its earliest beginnings to the flowering of medieval scholasticism. Emphasis on the contribution of important movements and great thinkers.

162. HISTORY OF PHILOSOPHY—MODERN. E
Continuation of Philosophy 161 from the Renaissance and the rise of modern science to 19th century idealism, positivism and voluntarism.

241. PHILOSOPHY OF RELIGION. F
Readings in contrasting religious philosophies followed by analysis of concepts involved in understanding religion as coherently related to the other aspects of experience.

261. CONTEMPORARY ANALYTIC PHILOSOPHY. E
Russell, Carnap, Wisdom, the later Wittgenstein, Austin, Strawson, Quine. Prerequisite, one semester course in philosophy.

264. EXISTENTIAL PHILOSOPHIES. C
Examination by a study of selected original texts of the main problems peculiar to this movement as a whole and to its main exponents individually. Prerequisite, one semester course in philosophy other than 125.

280. ETHICAL THEORY. D
Some of the major problems of ethical theory with emphasis on definition, the status of ethical statements, reasoning and justification in ethics.

541. PHILOSOPHY OF RELIGION. F
Readings in contrasting religious philosophies followed by analysis of concepts involved in understanding religion as coherently related to the other aspects of experience.

561. CONTEMPORARY ANALYTIC PHILOSOPHY. E
Russell, Carnap, Wisdom, the later Wittgenstein, Austin, Strawson, Quine.

564. EXISTENTIAL PHILOSOPHIES. C
Examination, by means of a study of selected original texts of the main problems peculiar to this movement as a whole and to its main exponents individually.

580. ETHICAL THEORY. D
A discussion of some of the major problems of ethical theory with emphasis on definition, the status of ethical statements, reasoning and justification in ethics.

700. RESEARCH AND READING IN PHILOSOPHY.
Independent graduate research on specific topics in philosophy under the supervision of a faculty member. Prerequisite, permission of department.

800. MASTER'S THESIS. Credit, 6-10.

900. DOCTORAL DISSERTATION. Credit, 30.

Physical Education

100. PHYSICAL EDUCATION.
Skills courses in sport, dance, and other forms of physical activity available to all students in the University. (1-3) F, MWF; (4-6) G, MWF; (7-9) 1:00-2:30, TTh; (10-12) 2:30-4:00, TuTh. Credit, 1.

173. GOLF. A
Credit, 1.

176. HANDBALL/SQUASH. B
Credit, 1.

177. BOWLING. Credit, 1.

200. SOCIOLOGY OF SPORT AND PHYSICAL ACTIVITY. C
Social action theory, group structure, social institutions, social processes, current cultural trends, and social problems in sport. Prerequisite, Soc. 101.

202. HISTORY OF SPORT AND PHYSICAL ACTIVITY. B
A survey of the history of sport, dance, and other forms of organized, physical activity throughout the Western world. Prerequisite, Hist. 100 or 101.

253. PHYSICAL EDUCATION FOR ELEMENTARY SCHOOLS. B
Discussion of program content for elementary school physical education and presentation of methods used for teaching physical education activities at the elementary school level.

278. PHYSIOLOGY OF EXERCISE. A
Application of basic physiological concepts of the program of physical education, emphasizing physiological effects and adjustments accruing from participation in physical activity. Prerequisite, Zool. 135.

351. THEORY OF THERAPEUTIC EXERCISE. D
The theory of therapeutic exercise for the mentally retarded, physically handicapped, and normal. Prerequisite, PE 259 or equivalent.

352/652. PHYSICAL ACTIVITY AND THE MENTALLY RETARDED. E
Examining the motor domain of the trainable and the profoundly mentally retarded child, and to attempt an understanding of the neurophysiological factors underlying some of today's treatment programs. Prerequisite, PE 259 and permission of instructor.

662. HISTORY OF SPORT IN THE UNITED STATES. E
Sport in America from earliest times to the contemporary period. Emphasis will be placed on the social, political and economic factors which affected the development of sport. Prerequisite, PE 561.

700. SPECIAL PROBLEMS.

Individual research on a topic not covered by any existing courses. Normally confined to an extension of the content of an existing course rather than an introduction to a new area of study. Prerequisites, permission of instructor and director of the graduate program. *Credit, 1-6.*

800. MASTER'S THESIS.

Credit, 3-6.

813. MEASUREMENT THEORY AND HUMAN MOVEMENT RESEARCH. C

The theory of the construction of evaluative instruments in human movement with emphasis on a critical examination of existing measurement devices. Prerequisites, PE 274 and 712.

843. NEUROMUSCULAR FATIGUE. B

Analysis of fatigue and recovery processes in gross human motor activity. Prerequisites, PE 621, 742, 813, and Stat 551 and 561.

900. DOCTORAL DISSERTATION.

Credit, by arrangement.

Physics

141,142. INTRODUCTORY PHYSICS I, II. B

Mechanics, sound, heat; electricity, magnetism, light and modern physics, using trigonometry and algebra, but not calculus. Intended for pre-medical, pre-dental, pre-veterinary, and some science major students. Prerequisites, Math. 121 previously or concurrently for Physics 141; Physics 141 for Physics 142. Lab C-MTuW. *Credit, 4 each.*

161. GENERAL PHYSICS I. C

Mechanics. For students primarily interested in engineering, chemistry, or mathematics. Prerequisite, Mathematics 135 previously, or concurrently with special permission. Lab, B-ThF. *Credit, 4.*

162. GENERAL PHYSICS II. C

Heat, electricity, and magnetism. Prerequisites, Math. 135; Physics 161; Math. 136 previously or concurrently. Lab B-ThF. *Credit, 4.*

163. GENERAL PHYSICS III. B

Electromagnetic radiation, optics, atomic and nuclear physics. Prerequisites, Math. 136; Physics 162. Lab C-MTuW. *Credit, 4.*

700. INDEPENDENT STUDY.

Special study in some branch of physics, either theoretical or experimental, under the direction of a faculty member. A written proposal must be submitted to the faculty member guiding the investigation and to the Head of the Department for approval before registration. *Credit, 1-6.*

707. CLASSICAL ELECTRODYNAMICS II. B

The field of a moving charge, the Lienard-Wiechert potentials, Lorentz transformation and special relativity, covariant formulation of Maxwell's equations. Radiation of electromagnetic waves; the near field and far field, radiation damping and self fields, spectral resolution of radiation. Magnetohydrodynamics and plasma physics, collisions, scattering and absorption. Prerequisite, Physics 706.

900. DOCTORAL DISSERTATION

Credit, by arrangement.

Plant and Soil Sciences

700. SPECIAL PROBLEMS.

Selected research problems not related to a candidate's thesis.

702. RESEARCH LITERATURE.

A critical review of the scientific literature in an area of specialization.

800. MASTER'S THESIS.

Credit, by arrangement.

900. DOCTORAL DISSERTATION.

Credit, by arrangement.

Psychology

101. ELEMENTARY PSYCHOLOGY. B

An introduction to the basic approaches and concepts of modern psychology. Examples are drawn from the areas of perception, conditioning, cognitive processes, social behavior, tests and measurements, and personality. Topically oriented discussion sections emphasize the heuristic value of these concepts and approaches in considering some of the problems of our society.

141. PSYCHOLOGICAL METHODS. B

Introduction to the ways questions about behavior are formulated and then tested through experiments. Lectures and laboratory experiences involving concepts from many areas of psychology are used to expose psychology majors to the procedures utilized in designing, conducting, and reporting experiments. Prerequisite, Psych. 101. TuTh, Lab by arrangement.

145. STATISTICS IN PSYCHOLOGY. D

Introduction to statistical principles and techniques as applied to psychological data.

210. SENSATION AND PERCEPTION. C

Methods, data and theories of the functioning of various sensory systems. Topics will include a survey of basic sensory processes in the cutaneous senses, audition, vision, gustation, and olfaction; and higher perceptual processes in selected senses. Prerequisite, Psych. 101.

220. LEARNING AND THINKING. B

A general survey of animal and human learning and performance. Topics include: factors affecting acquisition, generalization, discrimination, extinction, and transfer in animals and humans; memory; and higher cognitive processes in humans. Prerequisite Psych. 101.

222. LABORATORY IN ANIMAL LEARNING.

Introduction to methods used in investigating classical conditioning and operant behavior primarily using laboratory animals as subjects. Topics that will be studied in the laboratory will include: Acquisition, generalization, discrimination, extinction, and transfer phenomena. Prerequisites, Psych. 141 and 220. *Credit, 2.*

230. MOTIVATION. D

Introduction to theories and research on the nature and determinants of motivation. Topics include instinct, behavior and energization concepts, biological and acquired bases of emotions and motives, frustration, conflict and stress. Prerequisite, Psych. 101.

231. LABORATORY IN MOTIVATION.

Methods of investigating motivation, including both laboratory and field studies using human and animal subjects. Includes selected projects conducted individually and in small groups by members of the class. Prerequisites, Psych. 141, 230. *Credit, 2.*

250. PHYSIOLOGICAL PSYCHOLOGY. C

Neural bases of behavior, current issues in physiological psychology; psychobiological investigations of learning, sensory processes, motivation, and instinctive behavior. Prerequisites, Psych. 101 and Zool. 101 or consent of instructor.

262. CHILD PSYCHOLOGY. A
Psychological development of the child, including language, emotions, intelligence, social behavior, motivation, and personality. Not open to psychology majors. Prerequisite, Psych. 101.

263. PSYCHOLOGY OF ADOLESCENCE. A
Consideration of the development, and emotional, social and intellectual adjustment of the individual during the adolescent years. Prerequisite, Psych. 101.

270. PERSONALITY. A
Introduction to the scientific study of personality. A consideration of personality development, structure and dynamics from major theoretical orientations. Prerequisite, Psych. 101.

290. INDUSTRIAL PSYCHOLOGY. D
Psychological principles, underlying personnel selection and training, communication and decision-making in industry. Prerequisite, Psych. 101.

301. EDUCATIONAL PSYCHOLOGY. C
Psychological facts and principles of development, learning, and measurement as applied to educational situations. Prerequisite, Psych. 101.

305. HISTORICAL AND CONTEMPORARY SYSTEMS. C
General structure of psychological theory; analysis and comparison of historical systems in the tradition of British empiricism-associationism and Continental rationalism, and of derivative near-contemporary and contemporary mentalistic, functionalistic, and behavioristic systems. Prerequisite, Psych. 101.

391. SEMINAR IN PSYCHOLOGY. *Credit by arrangement.*

700. PROBLEM IN PSYCHOLOGY.
A research project which may be taken in lieu of the master's thesis, or by doctoral students as minor research.

746. QUANTITATIVE METHODS IN PSYCHOLOGY.
Mathematical descriptions of psychophysical and time-dependent data; parameter estimation; stochastic processes. Prerequisites, Psych. 545 and Math. 123 or equivalent.

795. PSYCHOLOGY OF CLASSROOM LEARNING. E
Review and analysis of the findings of psychology that pertain to instruction. Emphasis on the practical control of learning activities especially as seen in the classroom. Prerequisite, Psych. 280 or equivalent, or permission of instructor.

800. MASTER'S THESIS. *Credit by arrangement.*

871.872. PRACTICUM.
Practice in the application of psychological techniques to clinical, and counseling, and practice in teaching in any area of psychology.

873. TEACHING PRACTICUM IN PSYCHOLOGY.
Required of all doctoral candidates. Experience in procedures, leading discussion groups and teaching labs. Close supervision by members of the faculty. Students will meet once a week to discuss problems in teaching.

891. SEMINAR.
Selected topics of current significance in psychology. Research studies analyzed and theoretical advances explored. Prerequisite, permission of instructor. *Credit, 2.*

895. RESEARCH METHODOLOGY.
Study and evaluation of research methods and of problems in the major fields of psychology. *Credit, 2.*

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900. DOCTORAL DISSERTATION. *Credit by arrangement.*

Public Health

123. DYNAMICS OF PERSONAL AND COMMUNITY HEALTH. B
Development of understanding and attitudes relative to personal, family and community health needs. Attention given to mental and physical well being, drugs, sexuality, communicable and chronic diseases and health services.

304/604. SCHOOL HEALTH. E
Consideration of the principles, concepts, methods, and dynamics of the organization of a school health program at the elementary and secondary level. Stress is placed in the planning and teaching in problem areas, (i.e., sex education, mental health and drugs). Prerequisite, junior or senior standing or permission of instructor.

311/611. HUMAN SEXUALITY AND SEX EDUCATION.
Promotes insight into human sexuality in relation to modern life. Emphasis on human sexuality as it may appear in the infant, the child, the adolescent, and the young married adult, as well as an examination and clarification of some of the crucial dynamics of the present. Prerequisites, junior or senior standing and permission of instructor. TuTh, 7-10 p.m.

312/612. PUBLIC HEALTH AND FAMILY PLANNING. C
Public Health problems associated with family health and population limitation. Historical factors, limitation methods, and barriers and facilitators related to family health and size. Prerequisites, P.H. 123, Soc. 101, or permission of instructor.

700. SPECIAL PROBLEMS IN PUBLIC HEALTH.
Special investigational or research problems in public health for advanced students. The scope of the work can be varied to meet specific conditions. *Credit, 3-6.*

702. ADVANCED METHODS IN HEALTH EDUCATION.
Health education efforts that have influenced community health. Individual study, programming and research methods. Prerequisite, permission of instructor.

800. MASTER'S THESIS. *Credit, 6-10.*

Rhetoric

140. VOICES OF IMAGINATIVE WRITING. B;F
Examination of various kinds of verbal imaginative expression in our culture — rock lyrics and modern poems, advertising, short fiction, drama — with a view to helping students become more articulate and critical as readers and more resourceful and daring as writers. Exercises in critical reading or analysis balanced by frequent "creative" writing activities in various genres. By "playing" with language in various ways, the student is led to serious efforts at self-expression and self-definition.

165. MODERN PUBLIC DISCOURSE. B;F
Modern oral discourse — how it works and why it sometimes fails — organized under five topics such as "The Rhetoric of War and Peace" and "The Rhetoric of Human Rights." The final unit, "The Rhetoric of Justification," considers speakers as they justify the rationale for their country's domestic or foreign policy, or for their own specific acts.

Slavic Languages and Literatures

255. MASTERPIECES OF RUSSIAN LITERATURE IN TRANSLATION. B

Selection from classics of Russian romanticism and realism culminating in the novels of Dostoevsky and Tolstoy. Prerequisite, junior standing.

257. SOVIET LITERATURE. C
Beginnings and development of Soviet prose, drama and criticism from Gorky to the present. Conducted in English. Majors are required to do research in Russian. Prerequisite, junior standing.

557. SOVIET LITERATURE. C
A representative study of the beginnings and development of Soviet prose, drama and criticism from Gorky to Sholokhov and Pasternak. Prerequisite, proficiency in Russian.

Sociology

101. INTRODUCTION TO SOCIOLOGY. A
The fundamental terminology of sociology and intensive discussion of selected topics from a sociological point of view.

251. URBAN SOCIOLOGY. B
A comparative analysis of cities and of urbanization with special reference to demographic characteristics or urban populations, urban ecology, and urban social structure. Prerequisite, Soc. 101.

255. SOCIOLOGY OF RELIGION. D
The relationship of religious beliefs and institutions to cultures and societies. Prerequisite, Soc. 101.

256. RACE RELATIONS. C
The social, economic and political aspects of racial and ethnic problems in the United States, plus briefer consideration of similar problems in Africa and Asia. Prerequisite, Soc. 101.

258. SOCIAL INTERACTION. G
Social interaction in the context of groups, especially small groups. Focuses upon the dynamics of interaction process as the basis for group development with special attention to the emergence of normative and affective subsystems and to role differentiation. Prerequisite, Soc. 101.

259. SOCIAL STRATIFICATION. E
The factors associated with institutionalized inequality in social life. A consideration of class, status, and power in American society. Prerequisite, Soc. 101.

261. POPULATION PROBLEMS. F
An analytical study of population composition, focusing upon the causes and consequences of changes in the basic demographic variables: fertility, mortality, and migration. Prerequisite, Soc. 101.

266. COMMUNITY AND HUMAN ECOLOGY. G
Origin, development, location, junctions, and system of communities. Ecological process of change, invasion and succession, centralization and decentralization, suburbanization; residence patterns, concentration, and segregation of racial, ethnic, and religious groups are comparatively analyzed.

270. SOCIAL STRUCTURE OF INDIA. B
The origins, distributions, and cultural traits of the major groups in India. Special attention given to marriage, family, caste patterns, and positions in the economic and political system. Prerequisite, Soc. 101.

275. SOCIAL PROBLEMS. F
The distribution and interrelationships among some types of deviance and disorganization; crime, mental disorders, addiction, suicide, family tension. Theories of causation; research projects. Prerequisite, Soc. 101.

278. CRIMINOLOGY. D
The nature of crimes and the factors underlying criminal behavior. The machinery of justice; the law, courts, police systems, and correctional institutions. Prerequisite, Soc. 101.

385. SOCIOLOGY OF DRINKING AND
DRUG TAKING. D
Sociological examination of drinking and drug taking behaviors, including social and cultural settings, behavioral and social consequences, and socio-cultural (including legal) reactions. Pharmacological, historical and anthropological aspects of drinking and drug taking will be considered in an introductory treatment, and alcoholism and drug addiction will be examined as special problems associated with these behaviors. Readings, lectures, discussions, student projects, exams.

386. SOCIOLOGY OF COMMUNES. F
Topics include: Utopian thoughts in intellectual history; communal experiments, past and present, their common characteristics; the relationship between the commune and the larger outside society, in its genesis, development and eventual success or failure; and, examinations of communes as studies in micro-social systems and as experiments in alternative social theories. Readings, lectures, discussions, student projects, exams.

Spanish

110,120. ELEMENTARY SPANISH.
For students with no previous creditable training in Spanish. Intensive practice in language skills. To fulfill the language requirement, upon completion of the course most students are required to continue by taking Spanish 130 or 140. 110: A; Lab, E-MWTh, C; Lab, F-MWTh. 120: B; Lab F-MWTh.

126. ELEMENTARY SPANISH—INTENSIVE. A&D
An intensive elementary course with emphasis on the oral aspect designed to allow completion of Spanish 110 and 120 in one course. Open to all. Lab, B-MTuWTh. *Credit, 6.*

130,140. INTERMEDIATE SPANISH. B;C
For upperclassmen who have completed Spanish 110-120, and those freshmen and transfer students who are found qualified by placement examination. Training in language skill, with emphasis on speaking and understanding; readings in cultural and literary texts. Students completing Spanish 140 fulfill the language requirement.

161. INTRODUCTION TO SPANISH LITERATURE. C
Selected complete works in several genres studied analytically and critically to develop intensive reading skills and extend the student's ability to interpret and explicate in Spanish both orally and in writing. Prerequisite, Spanish 140 or equivalent.

181. ORAL SPANISH. A
Oral aspects of the language: pronunciation, vocabulary building, speeches, discussions, debates. Grammatical elements required for correct and fluent use of American and Peninsular Spanish. Prerequisite, Spanish 140 or permission of the department.

201. CULTURAL BACKGROUNDS:
LATIN AMERICA. C
The unity and diversity of Latin American civilization and the different cultural factors that have shaped it. In Spanish. Prerequisite, Spanish 140 or equivalent.

409. GRADUATE READING COURSE. B
Reading for Graduate students preparing for their M.A. or Ph.D. reading exam. Prerequisite, permission of the department. *No credit.*

700. PROBLEM COURSE.
Directed study in some phase of linguistics or literature.

Speech

115. INTRODUCTION TO THE THEATRE. A;E
Introduction to the art of the theatre: a survey of its aesthetics, elements, forms, and contributing artists; its influences and place in our culture.

121. INTRODUCTION TO BROADCASTING. B;C
The field of radio and television broadcasting, including its history, present structure, philosophy, and social impact in the United States and abroad.

135. FUNDAMENTALS OF PLAY PRODUCTION. D
Methodology and techniques of play production; lectures, demonstrations, and practical laboratory work. The responsibilities and contributions of all participating artists are examined in detail through intensive study of every aspect of production from script to stage.

182. INTRODUCTION TO COMMUNICATION DISORDERS. A
The types and causes of communication disorders with emphasis on speech disorders.

223. TELEVISION PRODUCTION-DIRECTION.
A laboratory course emphasizing TV studio procedure and technique. Practical experience is provided in studio crew assignments. C, MTuW, C&D, Th.

225/525. HISTORY OF FILM.
Evolution of the motion picture, its high points of artistic growth in representative countries. E, MTuW, E&F, Th.

226. FILM PRODUCTION.
Procedures and techniques in all phases of film-making and practical experience in scripting, shooting, and editing of narrative and non-narrative forms. F, M, G, TuWF.

228/528. RADIO, TELEVISION, FILM AND SOCIETY. B
The affective and reflective roles of the radio, television, and film media in society. Prerequisite, Speech 121.

246/546. DIRECTING II. C
Problems in the interpretation and staging of various types of contemporary drama will be explored. Attention will be given to rehearsal and performance procedures. Prerequisite, Speech 245.

252/552. ADVANCED ORAL INTERPRETATION OF LITERATURE. D
Concentration upon the philosophical and technical bases for reading the lyric poem, fiction, drama and documentary materials. Prerequisite, Speech 152.

253/553. CHILDREN'S DRAMA I. E
Informal dramatics, without an audience, in classroom and recreation programs, serving children's need for creative outlets and furthering awareness, self-expression, self concepts, and social growth through imagination, pantomime, and improvised story dramatization.

288/588. CLINICAL PRACTICE.
Supervised experience in therapy with individuals having speech and hearing disorders. May be repeated once. Prerequisite, permission of instructor. *Credit, 1-3.*

390/690. SEMINAR IN SPEECH PATHOLOGY. B
Individual student reports on selected topics. Prerequisite, Speech 182.

391/691. SEMINAR IN MASS COMMUNICATIONS. A
An analysis and discussion of major problems in mass communications, examinations of current research. Prerequisite: 9 hours in mass communications.

700. SPECIAL PROBLEMS.
Independent study in special subjects. *Credit, 1-3.*

711. RHETORICAL CRITICISM. D
Selected theories and methods of rhetorical criticism and their applications. Prerequisite, Speech 205 and one other course in rhetorical theory.

718. SEMINAR IN PUBLIC ADDRESS. E
Intensive study of selected topics in the history and criticism of public address. Prerequisite, permission of instructor. May repeat for a total of 6 credits. *Credit, 3-6.*

734. CINEMA AS A SOCIAL FORCE. F
Affective and reflective roles of the film in society, with emphasis on the relationship of the society to the structure, development, function, and effect of the motion picture.

784. ORGANIC PATHOLOGIES OF SPEECH. A
Etiology, classification, evaluation, and speech rehabilitation of cleft palate, laryngectomy, and other organic pathologies of speech. Prerequisites, Speech 283/583 and 284/584.

791. CLINICAL SUPERVISION IN SPEECH PATHOLOGY AND AUDIOLOGY.
Organization, management, and supervision of speech pathology and audiology programs in public schools, rehabilitation centers, hospital clinics, and in special education residential settings. Permission of instructor.

800. MASTER'S THESIS. *Credit, 3-6.*

Zoology

101. INTRODUCTORY ZOOLOGY (E).
Principles of zoology including cell structure and metabolism, heredity, development, behavior, evolution, ecology, and the anatomy and physiology of the major groups in the animal kingdom. Provides background for understanding current biological problems. B, MWF; Labs, D-E, MW; E-F, MW.

135. INTRODUCTORY PHYSIOLOGY.
Circulation, respiration, digestion, metabolism, excretion, chemical and nervous coordination, muscular activity, and reproduction. Prerequisite, Zool. 101. B, MWF; Labs, D-E, MW; E-F, TuTh.

360. GENERAL AND CELLULAR PHYSIOLOGY.
Modern trends in physiology with emphasis on chemical and physical properties of cells including cell ultrastructure and metabolism, permeability, muscle contraction and molecular biology. Prerequisites, one year of biology, Biochem. 223, B, MWF; Lab, F-G, WF.

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* Civil Defense Fallout Shelters
† Buildings that are self-liquidating
a Residence houses



**UNIVERSITY OF MASSACHUSETTS
AMHERST • BOSTON • WORCESTER**

SUMMER SESSION 1971
UNIVERSITY OF MASSACHUSETTS
AMHERST, MASSACHUSETTS 01002

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University of Massachusetts Bulletin



1972
*Summer Session
at Amherst*

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Summer Session 1972

University of Massachusetts at Amherst



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Summer Session 1972 Calendar

MAIN EIGHT-WEEK SESSION AND SPECIAL FRESHMAN PROGRAM

Registration day: June 26

Classes begin: June 27

Final day for adding courses: June 30

Final day for dropping courses without penalty: July 24

Classes end: August 18

DAILY SCHEDULE

Standard classes are **sixty minutes in duration**, and are normally scheduled to meet Monday through Friday. The standard starting times are: 7:45 a.m.; 9:00 a.m.; 10:15 a.m.; 11:30 a.m.; 1:00 p.m.; 2:15 p.m.; 3:30 p.m.

Final examinations will be given during regular class time. At the option of the instructor, two class periods may be used.

The Directory of Courses section lists the starting time

of regular course offerings and beginning and ending times of classes other than one hour long. A final schedule of courses will be available shortly before and at registration.

Special Sessions

Some departments offer certain courses and programs at dates other than the main eight-week term. These dates are given under the course descriptions and/or under the section on Special Programs.

Inquiries

Information not included in this Bulletin may be secured by writing:

Summer Session
Office of the Provost
Whitmore Administration Building
University of Massachusetts
Amherst, Mass. 01002



The University of Massachusetts

Amherst • Boston • Worcester

Founded in 1863, the University of Massachusetts is one of 66 land grant colleges and universities in the United States providing public education, research, and service. The University campus at Amherst, situated on 1,100 acres in the picturesque Connecticut River Valley, enrolls 22,500 students and is served by a \$160-million physical plant. The University has continually expanded to meet the growing needs of the Commonwealth. The University of Massachusetts at Boston opened to 1,000 freshmen in 1965 and currently enrolls approximately 4,870 students. The new University of Massachusetts Medical School at Worcester opened in the fall of 1970, and plans are presently being developed for the establishment in Amherst of a Law School.

At Amherst, a broad and continuous program is provided by the undergraduate schools and colleges, the

Graduate School, the Summer Session, and the Division of Continuing Education. Basic units are the College of Agriculture, the College of Arts and Sciences, the Schools of Business Administration, Education, Engineering, Home Economics, Nursing, and Physical Education, and the Department of Public Health. The University also has voluntary Army and Air Force ROTC programs, an active Phi Beta Kappa chapter, and more than 400 student organizations. Numerous centers and bureaus actively serve the Commonwealth in such fields as government research, labor relations, natural resources, and population.

The University has joined Smith, Amherst, Hampshire and Mount Holyoke Colleges in a five-college cooperative program, developing specific Ph.D. programs as well as operating a radio station and offering lectures, special courses, and inter-library loans.



General Information

APPLICATION PROCEDURE

Pre-registration may be accomplished by submitting application and registration forms to the Admissions Office, 255 Whitmore Administration Building, for undergraduates, and to the Graduate School, Graduate Research Center, for graduate students, prior to June 12. Course registrations and schedules will be arranged for persons applying by this date. Applications received later than this date will not be processed, but returned to the student. In such cases no scheduling will be done in advance, no bill or housing assignment will be made until Registration Day, and the student may find certain courses closed because of capacity enrollment. Course registration and scheduling will be handled on a "first-come, first-served" basis. Although every effort is made to accommodate scheduling requests, *the University cannot guarantee enrollment in a particular course section*. Early application will help to ensure a preferred schedule and will enable registration to proceed in a minimum of time.

Students whose applications have been processed must still appear on Registration Day to obtain their schedules and to sign the Certificate of Registration form. Applications for students who do not appear will be cancelled after the late registration period.

Application forms are included in this Bulletin and may also be obtained from the Registrar's Office, 213 Whitmore Administration Building, or from the Graduate School, Graduate Research Center, University of Massachusetts, Amherst, Massachusetts 01002.

Any student who holds a degree must apply through the Graduate School whether he is taking courses for credit or not, even though he is applying for undergraduate courses. Acceptance to the University Summer Session is not an acceptance to the University for any regular session (other than for "Swingshift Freshmen").

REGISTRATION

Registration for both the main eight-week session and the special Freshman Program will be held on June 26 in Boyden Gymnasium. Students may register from 9:00

a.m. to 12 noon and from 1:30 to 4:30 p.m. See also Summary of Registration Procedures just before Directory of Courses in this Bulletin.

HOUSING

It is the policy of the Board of Trustees to require the housing of undergraduates in University residence halls. Exemptions to this rule are granted to married students, to those commuting from the home of their parents, to seniors, and to those over 21 years of age.

Residence halls will open for occupancy at 1:00 p.m. on the day immediately preceding Registration Day and will close on the final day of classes. Room assignments will be available to pre-registered students upon arrival.

All rooms are provided with basic furniture, including beds and mattresses, desks, desk chairs, lounge chair, wastebaskets, bulletin boards, window drapes, and night stands. Each student is responsible for providing ash trays, pillows, bed linen, blankets, and towels. Linen service may be obtained by contract with a private linen service.

Those eligible to reside off-campus may obtain housing information by writing to the Off-Campus Housing Office, 235 Whitmore Administration Building, University of Massachusetts, Amherst, Massachusetts 01002.

BOARD

The University Food Services will offer a choice of a 10 or 15 meal ticket during the Summer Session. The charge for the 10 meal ticket (any two meals a day, Monday through Friday) will be \$16 per week, and the charge for the 15 meal ticket (three meals a day, Monday through Friday) will be \$18 per week. All students in University residence halls are required to purchase one of the two meal tickets except those students who are seniors, over 21 at the time of registration, or married. These board contracts offer a highly selective menu with a "seconds" policy on all items.

Food may be purchased on a cash basis at the Campus Center—Student Union snack bars and the snack bar located in Worcester Commons.

EXPENSES

In order to avoid delays at registration, students are encouraged to pre-register by mail before June 12 for the main eight-week term of Summer Session. This will enable the Bursar's Office to prepare a bill for each student, making it possible for the student to pay in advance. A STUDENT CANNOT REGISTER UNLESS HIS BILL IS PAID IN FULL.

As this Bulletin is prepared long in advance of the summer, the fees listed are subject to change.

TUITION for residents of	
Massachusetts	\$ 10 per credit
TUITION for non-residents of	
Massachusetts	\$ 15 per credit
HEALTH FEE*	\$ 2 per week
CAMPUS CENTER FEE*	\$ 2 per week
STUDENT ACTIVITIES FEE*	\$ 2 per week
BOARD—	
WEEKDAYS ONLY	\$ 18 per five-day week
RENT**	\$ 19 per week

SPECIAL FRESHMAN PROGRAM

TUITION for residents of	
Massachusetts	\$100
TUITION for non-residents of	
Massachusetts	\$300
(The matriculation fee payment of \$15 will be deducted from both tuition rates.)	
HEALTH FEE*	\$ 16
CAMPUS CENTER FEE*	\$ 16
STUDENT ACTIVITIES FEE*	\$ 16
PHYSICAL EDUCATION FEE	\$ 10
BOARD—	
WEEKDAYS ONLY	\$144
RENT**	\$152

BOOKS, STATIONERY AND SUPPLY EXPENSES

Students should be prepared to pay for necessary books and incidental supplies. Certain departments make special charges for laboratory supplies.

*Required fees, to be paid by all students including commuters.

**Depending on residence hall assignment, other rent rates are \$17 and \$22 per week.

TUITION AND FEE REFUNDS

A student who leaves the University before a term is completed will ordinarily be granted a refund of tuition and fees according to the following schedule:

- | | |
|---------------------------------------|-----------|
| 1) During the first week of the term | 60% |
| 2) During the second week of the term | 20% |
| 3) After the second week | No refund |

A student who makes an advance payment and then for any reason does not attend any part of Summer Session will be given a full refund of tuition and fees after contacting the appropriate Registrar's Office.

A student involuntarily called into military service before the completion of a term will be given a pro rata refund of tuition and fees, provided that he receives no academic credit for the work of that term. If academic credit is given, there will be no refund.

A student who is suspended or expelled from the University for disciplinary reasons forfeits all rights to a refund.

No refund will be given of prepaid room rent after a term has begun and the room has been occupied.

RESIDENCE

New students who are residents of Massachusetts must file a Certificate of Residence with the Treasurer's Office in order to obtain a residential tuition rate. The application form includes the appropriate certificate.

VETERANS AND WAR ORPHANS

Students eligible for educational benefits through the Veterans Administration, either as veterans or as children of deceased or disabled veterans, should present certification of eligibility at registration. If already receiving benefits, they should enroll again for them. Students are invited to consult the Veterans' Coordinator, 239 Whitmore Administration Building, regarding their V.A. records.

MOTOR VEHICLE REGULATIONS

All student, faculty, and staff motor vehicles must be registered with the Parking Office, Room 105, Hampshire House. All students may be permitted to have a motor vehicle on campus, provided it is registered with the Parking Office and complies with published University regulations. Copies of these motor vehicle regulations should be obtained at the Parking Office.

Visitors are requested to use the new multi-level Campus Center Parking Garage unless another lot is suggested.

All areas are under roving security surveillance. Visitors may secure information at the Parking Control Booths or at the Security Building. Inquiries concerning parking should be directed to the Parking Authority, University of Massachusetts, Amherst, Massachusetts 01002.

ADMINISTRATIVE CONTACTS

The usual initial contact for students with the administrative staff is based upon a student's local residence: residence hall students should begin with their Area Coordinators; men and women commuters with the Office of Non-resident Student Affairs.

Academic Information

ADDING OR DROPPING COURSES

A student may add or drop any course during the first four class days of the term without notation on his record. No course may be added after the fourth day. After the fourth day but before the eleventh class day, a course may be dropped with a mark of W (withdrawn) recorded. After the tenth day, any course dropped is recorded as F (failing). This grade is not computed in the quality point average. The dates for the W and F designations are the same for those enrolled in the Special Freshman Program and regular Summer Session students.

OVERLOAD OF CREDITS

A full Summer Session program is usually considered to consist of three three-credit courses. Students who wish to register for additional credits must secure approval as follows:

- 1) 12 credits (one extra course)
Academic Dean (University students)
Coordinator of Summer Session (visiting students)
- 2) A senior graduating in summer or the following January may register for 12 credits without extra permission.

Forms for overloads for undergraduates may be secured in the Registrar's Office, 213 Whitmore Administration Building. Graduate students should inquire at the Graduate Office, Graduate Research Center.

AUDITING

A student who intends to audit a course must register and pay the regular tuition and activities fees. There is no special audit fee. A student who drops a course during the term, but wishes to continue on an audit basis, will receive a grade in accordance with the existing regulations governing the Add and Drop periods.



ACCELERATED ENROLLMENT

The University invites superior high school students to begin their college education immediately upon graduation by enrolling in the Summer Session. For the highly motivated student, perhaps already convinced that his formal education will require graduate or professional studies, an early start may conserve valuable time. Similarly, students in financial need may find it less expensive to complete their undergraduate education in less than four years. Summer Session attendance can substantially reduce the time necessary to obtain a bachelor's degree.

Students who wish to start their University of Massachusetts undergraduate work in the summer are advised to apply to the Admissions Office for regular admission by the fall of their senior year. At the same time, they should indicate their desire for summer study. The registrar's Office will forward a Summer Session application and detailed information regarding the summer program.

Students who have been accepted at institutions other than the University of Massachusetts may enroll in the summer program, providing they secure the approval of their college. A space for this approval is furnished on the Summer Session application.

SPECIAL FRESHMAN PROGRAM

Each year a number of high school graduates are admitted to the University with the stipulation that they begin their college careers in the Summer Session, take their vacation period during the fall semester, and join their regular class for the spring semester. After completion of this first year, students then follow the regular school year sequence.

This is an invitational program for students who apply for regular admission to the University, and it is not available to visiting students. Begun in the summer of 1964 with 180 students, the program has been expanded in recent years and will accommodate 400 students this summer, during the eight weeks between June 26 and August 18.

Students in this program normally will complete 9 credits of academic work in addition to one semester (1 credit) of required physical education. While course offerings will be limited (approximately 21 courses from 16 departments), there will be sufficient breadth to ensure most people a balanced program. In addition, a student may select one course from the numerous regular Summer Session offerings if such a choice would be in the student's best interest. Since the work completed during the summer term does not constitute the equivalent of a regular semester, students should be prepared to enroll in two courses in the fall semester in their home area to ensure that they have sufficient credits to equal a full semester.

The academic program is composed primarily of lower division courses specifically designated for students in this program. However, various courses from the regular Summer Session offerings may be elected to supplement the courses specifically designated for special freshmen. Ordinarily, a student will select three courses, including rhetoric, plus physical education. The departments offering courses in the Special Freshman Program are:

Art	Philosophy
Botany	Physical Education
Chemistry	Political Science
Engineering	Psychology
French	Rhetoric
German	Sociology
History	Spanish
Mathematics	Zoology

THESIS AND PROBLEMS CREDIT

Graduate students contemplating special course work and thesis work during the Summer Session should seek the permission of their department heads and/or advisers. Special and thesis courses are listed by number in the departmental offerings section of this Bulletin. A student who fails to register for such work will not receive an Identification Card and cannot use University facilities.

WITHDRAWALS

An undergraduate student who has attended Summer Session classes and who wishes to drop all of his courses and thus terminate enrollment must observe formal procedures. Summer Session withdrawal papers originate in the Office of Non-resident Student Affairs for commuting students, and with the Southwest Area Coordinator for on-campus residents. If a student withdraws from the Summer Session during the second half of the term (after July 22), grades of WF or WP will be entered, as appropriate, for all courses.

Summer Session withdrawal papers for graduate students may be obtained at the Graduate School, Graduate Research Center.

CREDIT FOR SUMMER WORK

All courses carry degree credit and are equivalent in method, content, and credit to courses offered at the University during the regular academic year. Credits obtained in these courses are ordinarily accepted as transfer credits by other colleges and universities.

Students who are registering for the first time or who have registered previously and desire to pursue an advanced degree at the University must secure the approval of the requisite departments and approval of the Dean of the Graduate School on the appropriate application form.

Special Academic Programs

FRENCH STUDIES AT PAU

The program in Pau, southwest France, provides study in French language, stylistics, literature and civilization. Courses are taught by French university professors, mainly from the faculties of Bordeaux and Toulouse. Open to both undergraduate and graduate students, the program permits students to enroll in courses appropriate to their language abilities and interests. Up to six University of Massachusetts credits in French can be earned. The total program is from June 17 to August 26; the study program runs from July 8 to August 22, with the extra days used for independent or group travel before and after the study program. Excursions to Lourdes, the Basque country, and other places of cultural interest are an integral part of the program. The participation fee is \$725, and covers international travel, tuition, room and board at Pau, and excursions planned as part of the program. A limited number of partial scholarships are available. Contact: French Studies at Pau, Department of French and Italian, Herter Hall, University of Massachusetts, Amherst, Massachusetts 01002.

HISPANIC STUDIES IN MADRID

In its 1972 program in Madrid, June 19 to August 25, the Department of Hispanic Languages and Literatures offers a) two graduate seminars, b) two courses open to graduates, to 1973 seniors and, by permission, to approved students of the class of 1974, and c) one undergraduate course. They are all conducted in Spanish and carry three credits each. The normal load is six credits. The purposes of the program are:

1. to provide access (for qualified students) to intensive advanced work in literature and the history of ideas;
2. to offer the experience of total immersion in the Spanish language and culture;
3. to introduce students to Spanish scholars and creative intellectuals and artists who have not come to the U.S. to teach. Among the distinguished faculty for 1972 are Pedro Lain Entralgo, Heliodoro Carpintero, José Luis Alonso-Misol, and José Olivio Jiménez

In addition to a six-week course of study, the program offers lectures, integrated weekend trips, and an optional post study tour of Andalucia. Basic fee includes round-trip air transportation, tuition, room and board in a selected private home (June 20 to August 4), lectures and excursions. Basic cost to Massachusetts students is \$875; to non-residents, \$905. Optional trips cost approximately \$100.

For further information write to: Director, Madrid Program, Herter Hall, University of Massachusetts, Amherst, Massachusetts 01002.

OXFORD PROGRAM

A special group of courses in English literature is regularly offered at Trinity College, Oxford, during July and part of August. The six-week session corresponds with the regular session of this University and awards University of Massachusetts credit. The courses are all taught by Oxford dons (current or past), and the Bodleian Library is available for extensive research. Graduate and undergraduate courses are offered and vary each year according to the availability of specialists at Oxford and the interests of students. Special evening lectures by noted authorities supplement these offerings. Overall cost to the student is \$875. Contact: Professor Ernest Hofer, Department of English, Bartlett Hall, University of Massachusetts, Amherst, Massachusetts 01002.

STUDY IN BOLOGNA

The University sponsors a program of summer study in Bologna, Italy, beginning in mid-June and ending the last week of August. The program is staffed primarily by members of the faculty of the University. The curriculum consists of regularly scheduled University courses on subjects in which the Italian location contributes significantly to the students' understanding and experience. These courses include Art History, History of Italy, Literature, Italian Language, and Cultural Anthropology. Field trips to major cultural centers in Italy are an integral part of the program. Any student in good academic standing at his college or university is eligible. Students will be expected to take two of any of the three-credit



courses in the fields of Art, History, Italian, Government, and Music. Cost to the student will be approximately \$875. Enrollment is limited. Contact: Professor Zina Tillona, Department of French and Italian, Herter Hall, University of Massachusetts, Amherst, Massachusetts 01002.

GERMAN STUDIES IN FREIBURG

The Department of Germanic Languages and Literature sponsors a six-week summer program, one week in Berlin and five weeks in Freiburg, Germany. Courses in elementary, intermediate, and advanced German are offered. Students may earn up to six University of Massachusetts credits. There is a three-week period for independent travel in Europe between the initial week in Berlin and the five-week study program in Freiburg. Dates of the program are June 17 to August 26.

The course fee of \$825 covers round-trip international travel, tuition, room and board, and special excursions to a number of places of cultural and historic interest, including Koln, Aachen, and the Black Forest. The program is open to both graduate and undergraduate students and is based at the University of Massachusetts Study Center in Freiburg. For further information, write to: Professor Albert Reh, Department of Germanic

Languages and Literatures, Herter Hall, University of Massachusetts, Amherst, Massachusetts 01002.

PROGRAM ABLE

Program ABLE (Accelerated Business Leadership Education), offered by the School of Business Administration, is designed to develop and enhance managerial skill among members of minority groups in our society. Persons who are presently employed in business and possess an undergraduate degree, or are graduates of accredited schools or colleges, are eligible for enrollment.

The program leads to the Master of Business Administration degree. An initial Summer Session consists of an intensive sequence of instruction in the disciplines underlying graduate business administration. Following successful completion of the summer work, students are admitted to the regular M.B.A. program of the School of Business Administration.

The entire program may be completed in 15 months—one academic year and two Summer Sessions. Financial aid is available, based on need.

For further information, write to: Dean Lawrence Johnson, School of Business Administration, University of Massachusetts, Amherst, Massachusetts 01002.

Summer Program

Each year a Summer Program is presented by the University of Massachusetts Summer Program Committee, providing the University community with a varied and balanced presentation of the arts, intramural sports, and recreational activities. Prominent musical artists and lecturers are engaged throughout the summer. Both national travelling art exhibits and exhibits of local artists are shown. A film series provides at least one film a week. The Summer Repertory Theatre presents plays of professional quality. Organized sports include softball, volleyball, tennis, and badminton. Individual participation is encouraged for swimming, outing trips, picnics, and crafts programs. All programs are coeducational.

Summer Session students are admitted free of charge to all Summer Program events upon presentation of their Summer Identification Cards. Details of the Summer Program events and ticket information will be available at registration, the Student Activities Office, and the Fine Arts Council Office.



Student Activities



The Student Activities Office in the Campus Center is the focal point for social, community, governmental, social action, cultural, and educational enrichment activity, in addition to serving as the headquarters for Recognized Student Organizations (R.S.O.) and the Program Office. It provides resource material and counsel on program planning, organizational work and group dynamics, entertainment selection and procurement, service and aid projects for campus and community, special interest activities and recreation, as well as counsel on budgeting, purchasing, and contracting. The Student Activities Office also provides a banking, bookkeeping, and auditing service for student organizations.

Participation in extracurricular activities offers opportunities to further the broader objectives of a college experience. More than 50 professional clubs on campus ex-

tend classroom interest through closer contact with members of the faculty and representatives of the professions. For those interested in communications, there are several campus publications. A wide range of social and cultural programs are coordinated through the residential colleges.

STUDENT ACTIVITIES STAFF

The following staff personnel may be contacted for any service or assistance needed:

Gerald F. Scanlon, Assistant Dean of Students, Coordinator of Student Activities; Sheila A. McRevey, Assistant Coordinator of Student Activities; James Riley, Jill W. Cochrane, and James E. Swartz, Program Advisers; Armand H. Demers, Supervisor of R.S.O. Accounts; and Lawrence Popple, R.S.O. Accountant.

Student Services

The Student Personnel Services is composed of University Offices with primary concern for students' non-academic needs, and includes:

Student Activities; Campus Center; Security; Human Services (University Health Services—physical and emotional health, Psychological Counseling, Career Planning and Placement, Community Development and Human Relations); Admissions, Records, and Financial Aid; Housing; Fraternity and Sorority Affairs; Men and Women Commuters; and Residence Area Affairs.

Dr. Robert W. Gage is Acting Vice Chancellor for Student Affairs, and Dr. William F. Field is Dean of Students.

CAMPUS CENTER

Mr. Warren T. Grinnan, Manager, Room 818, Campus Center (5-0585).

The Campus Center Manager administers and coordinates the management policies of the Campus Center Complex (which includes the Student Union Building and the new Campus Center). The duties include close coordination with the Campus Center Governing Board, serving on various committees concerned with student services, and supervision of the Campus Center Complex staff and services. Major areas of responsibility include the University Store, Campus Center Food Services, Lobby and Games Area, Campus Center Overnight Accommodations, Parking Garage, Print Shop, and Conference Operations.

FOREIGN STUDENT ADVISER

Mr. Arthur W. Boatin, 239 F Whitmore Administration Building (5-2843).

The Foreign Student Adviser offers assistance to foreign students, faculty, and staff, and should be consulted in all matters pertaining to their official immigration status while in the United States. In addition, the adviser may be consulted regarding any other problems which a person from another country encounters while at the University, such as housing, financial matters, and personal relations.

ADMISSIONS AND RECORDS

Dr. William D. Tunis, Dean of Admissions and Records, 225 Whitmore Administration Building (5-0222).

Mr. Ralph Jones, Registrar, 213 Whitmore Administration Building (5-0555).

The Admissions Office is responsible for all administrative procedures with respect to undergraduate admissions to the University including liaison with high school guidance counselors, community college staff personnel and other admissions officers for transfer students, and admissions standards set in coordination with the Provost and academic departments.

The Registrar's Office is responsible for undergraduate students at the University, administrative procedures relating to course of study, withdrawals, producing grade reports, transcripts, and maintaining the permanent academic record cards.

CAREER PLANNING AND PLACEMENT

Mr. Robert Morrissey, 239 Whitmore Administration Building (5-2225).

The Career Planning and Placement Service attempts to provide the opportunity for a candidate's individual initiative, while maintaining institutional and professional integrity without neglecting its responsibility to meet the needs of the public. The Service is made available to assist undergraduate and graduate students, as well as alumni in formulating and pursuing short and long range career objectives. The service includes personal and group counseling, assisting registrants in the planning of job campaigns, acting as an official source for references and complete credentials, providing centralized coordination for on-campus student/employer information and personal interviews, being a referral agent for interim work experience during full/part-time study, processing assistance in teacher certification application preparation, maintaining a resource library for career planning and graduate study, and offering resource personnel for in-service assistance to campus departments, individual faculty members, and student organizations.

COUNSELING CENTER

Dr. J. Alfred Southworth, Director, 243 Whitmore Administration Building (5-0333).

The basic aim of the Counseling Center is to support the student's efforts to develop into a mature, useful, self-fulfilled member of society. The Center's day-to-day work with the student-client involves psychological counseling on personal, social, educational, and vocational problems.

Consultation: Students consult with Counseling Center staff on such diverse topics as the construction of opinion polls, attitudes of staff towards campus issues, or approaches to remedying a difficult situation with parents, studies, roommates, etc. Students are encouraged to consult with the staff on any topic that would appear to be even remotely connected with the broad interests of the staff or the services offered by the Center. Many come to talk over transient adjustment problems or personal difficulties that they do not choose to share with friends, parents, or instructors. Many seek help with decision-making in vocational and educational matters. Most are dealing with problems of daily living that are a part of college life.

All individual counseling contacts with members of the Counseling Center staff are strictly confidential. No information is released to members of the University community, to parents, or to outside agencies (such as graduate schools, law enforcement agencies, or draft boards) without the student's explicit authorization, in advance.

When the need arises, the Counseling Center staff also administers and interprets psychological tests for assessing students' abilities, interests, and personalities.

Appointments: Generally, students seeking an appointment are seen immediately for an initial intake interview. An appointment is then made within a few days of the first interview.

HEALTH SERVICES

Mr. Barry Averill, Director, Health Center (5-2671).

The University Health Services has been organized to help students prevent health problems which might limit the effectiveness of their college experience. Direct services to students are supported by the Health Fee.

A staff of physicians, nurses, psychologists, pharmacists, physical therapists, technologists, and other personnel especially trained to meet student health needs are ready to provide comprehensive care in a well-equipped Health Center Infirmary. Students are encouraged to use the Health Services to obtain health care in the same way they would consult their family physician and would use the community hospital at home.

Those students who have paid the Health Fee are entitled to any care rendered on the campus by members of



the staff of the Health Services. The provision for care off campus can be arranged by the Health Services, but the cost of these services is the responsibility of the student.

Out-Patient Clinic: For a minor problem, such as a mild cold, a nurse often can offer effective treatment and save waiting time, or a student can visit the "cold self-treatment center" where medication and instructions for treating an uncomplicated respiratory infection are available.

In general, medications prescribed by the staff are provided without additional cost to students who have paid the Health Fee, except certain medications prescribed for prolonged periods. Laboratory studies, x-ray, physical therapy, and aid for emotional problems are available at the Health Center, also without additional cost.

In-Patient Clinic: The Health Center is also a hospital providing bed care for up to 65 students with serious illnesses. Usually the time lost from schoolwork is minimized if students remain on campus in the Health Center, where books and class notes are available, instead

Certificate of Domicile and Residence

Residence Requirements for Massachusetts Tuition Rates

As a state institution, University of Massachusetts offers the privilege of in-state tuition to all students entering from the Commonwealth. Eligibility for admission under the low residential rate is determined in accordance with the following policy established by the University.

1. A student must present evidence satisfactory to the Treasurer of the University that his domicile is in the Commonwealth of Massachusetts in order to be considered eligible to register in the University as a resident student. He must also have established a bona fide residence in the Commonwealth for a period of not less than one continuous year prior to the date of acceptance at the University, and certify his intention to continue to maintain such a residence.

2. The domicile and residence of a minor shall follow that of the parents unless such minor has been emancipated. In case of emancipation, the student in addition to the requirements of these regulations respecting domicile and residence shall

present satisfactory proof respecting emancipation. Minors under guardianship shall be required to present in addition to the certification of domicile and residence satisfactory documentary evidence of the appointment of the guardian.

3. No student shall be considered to have gained residence by reason of his attendance in the University nor shall a student lose residential preference during his continuous attendance at the University unless he ceases to be a citizen of the Commonwealth.

4. The domicile and residence of a wife shall follow that of the husband.

5. This form of certification for classification as to domicile and residence status must be submitted by each student. Misrepresentation of facts in order to evade the payment of out-of-state tuition shall be considered sufficient cause for suspension or permanent exclusion from the University.

6. Discretion to adjust individual cases within the spirit of these rules is lodged with the President of the University.

Note: The certificate on the reverse side is required only for new applicants to the University.

Certificate of Domicile and Residence

New applicants claiming the in-state tuition rate established for Massachusetts residents must submit this form properly completed.

Name of Student _____

Statement of Parent or Guardian:

(If student is under 21 years old)

I, _____, certify that I am the legal parent () guardian* () of _____ and that he (she) is domiciled in the Commonwealth of Massachusetts and has maintained a bona fide legal residence herein for a period of not less than one continuous year prior to the date of acceptance at the University; further, that he (she) intends to continue to maintain such a residence.

Signature _____

Statement of Student if 21 years or older:

I, _____, certify that I am 21 years or older and that I am domiciled in the Commonwealth of Massachusetts and have maintained a bona fide legal residence herein for a period of not less than one continuous year prior to the date of acceptance at the University; further, that I intend to continue to maintain such a residence.

Signature _____

*If certification is that of guardian, copy of Court appointment must be submitted.

Statement of Town or City Clerk:

This is to certify that the records of the City (Town) of _____

indicate that _____

is a legal resident of _____, Massachusetts.

Signed _____

Title _____

Date _____

(Seal)

NOTE: REGULARLY ENROLLED UNIVERSITY OF MASSACHUSETTS STUDENTS (BOTH AMHERST AND BOSTON) WHO HAVE A CERTIFICATE OF RESIDENCE ON FILE DO NOT HAVE TO SUBMIT THIS FORM.

Registration Application

Summer Session 1972

University of Massachusetts at Amherst

Completed applications should be returned as follows:

- For undergraduate work —
Registrar's Office
213 Whitmore Administration Building
University of Massachusetts
Amherst, Massachusetts 01002
(Telephone: 545-0555)
- For graduate work —
Graduate School Office
Graduate Research Center
University of Massachusetts
Amherst, Massachusetts 01002
(Telephone: 545-0721)

Registration Application—Summer Session 1972—Amherst

SPECIAL NOTICE — Admission to the Summer Session in no way implies admission to a regularly scheduled semester (fall or spring) of the University.

PLEASE PRINT

Name _____
LAST FIRST INITIAL

Home Address _____
NUMBER STREET HOME TELEPHONE

City _____ State _____ Zip Code _____

Country of Citizenship _____

Summer Billing Address, if different _____ Zip Code _____

EDUCATIONAL RECORD	degree	dates
Secondary School		
Colleges Attended		

CHECK AND COMPLETE ONE OF THE FOLLOWING APPROPRIATE ITEMS:

- ☐ 1. Currently enrolled University of Massachusetts student: Campus —
☐ Amherst ☐ Boston (complete Block 1)
- ☐ 2. *Formerly enrolled University of Massachusetts student: Campus —
☐ Amherst ☐ Boston (complete Block 1) Date of last attendance
*Note — Students twice dismissed from the University for academic deficiency are not eligible to attend Summer Session without approval from the Board of Admissions and Records
- ☐ 3. Accepted as a new University of Massachusetts student: ☐ Regular ☐ Undergraduate
☐ Graduate ☐ Accelerated Summer Freshman
- ☐ 4. A summer visiting student only (complete Block 2) ☐ Undergraduate ☐ *Graduate —
*A Transient Student application must also be filed.

UNDERGRADUATE FROM BOSTON CAMPUS BLOCK 1	Adviser's Signature
This certifies that the student has been enrolled at the Boston campus and has our approval to take courses listed. Record Clear: ☐ Yes; ☐ No (If No, state nature of encumbrance)	Registrar's Signature
	Date

UNDERGRADUATE FROM OTHER COLLEGES: BLOCK 2	Name of College
This certifies that the student has been enrolled at this institution and has our approval to take the courses listed.	Signature
	Title Date

TENTATIVE PROGRAM OF COURSES

TENTATIVE PROGRAM OF COURSES					
	Department	Number	Title	Starting Date	Crs
Special Sessions					
	Department	Number	Title	Meeting Period	Crs
Main 8-Week Term					

REGULAR UNIVERSITY STUDENTS:

Student Number								Class or Graduate	

PLEASE CHECK APPROPRIATE BOXES:

- ☐ Undergraduate ☐ Graduate
- ☐ Male ☐ Female
- ☐ Single ☐ Married
- ☐ Reside in Mass. ☐ Out of State
- ☐ Foreign ☐ Admission Mode

Major Dept _____

Date of Birth _____

Soc. Security # _____

RESIDENCE PLANS — CHECK ONE

- ☐ Commuting from home of parent or spouse
- ☐ Plan to live in Residence Hall
Roommate choice is: _____
- ☐ Plan to live off-campus (see regulation — undergraduates must be 21 or seniors)

BOARD PLANS — CHECK ONE

- ☐ Plan to dine on campus
- ☐ Off-campus dining plans (see regulations)

For Office Use Only

No. Credits	_____	
Tuition	_____	☐ S
Rent ☐	_____	☐ I
Board ☐	_____	
Activities	_____	
S. U.	_____	
Health	_____	
Athl. Fee	_____	
Total	_____	
DORM CODE	_____	



of going home to a hospital. Notification of parents and faculty is ordinarily the student's responsibility.

The details of medical problems are held in strict confidence and will be released to others only with the patient's permission. Parents are not notified when students visit the medical clinic or when students are admitted as in-patients unless a serious condition exists; for example, requiring major surgery.

Mental Health Division (5-2337): The medical clinic physicians may recommend that a student consult one of the Mental Health staff if it appears that a medical problem is partly the result of tension or anxiety; this is often the case with students who live under conditions of considerable stress. Students may make an appointment with one of the Mental Health staff, located in Machmer Hall. *All records are strictly confidential and will not be released without student authorization.*

Health Education Division (5-2492): The Division provides a broad range of activities aimed at helping students develop attitudes and behavioral patterns

which will promote optimal personal and community health. The staff spends considerable time in residence hall staff training programs, holds discussion groups, and conducts a Health Services evaluation program. Programs dealing with such topics as human sexuality, mental care, and Health Services information can be arranged.

Environmental Health and Safety Division (5-2682): The Division's prime function is to coordinate efforts to assure a safe and healthful environment for students, visitors, and employees of the University. Areas of specialization are general safety, fire prevention, radiation protection, and environmental health.

FINANCIAL AID SERVICE

Lynn E. Santner, 232 Whitmore Administration Building (5-0801).

Limited amounts of scholarships, loans, and Work Study jobs are available for Summer School. This aid is available only to regularly enrolled University students. Applications for Summer Session assistance can be obtained from this office, beginning in mid-December.

Summary of Registration Procedures

PRE-REGISTRATION — SUMMER SESSION

(Students in the Special Freshman Program will be notified of acceptance and registration procedures by mail.)

1. Review and select courses from this Summer Session Bulletin.
2. Complete Summer Session registration form. (Residency, if applicable.) Graduate students are required to complete the special student application form also, if they are not already graduate students.
3. Mail form(s) to Registrar's Office (Undergraduate, 213 Whitmore Administration Building, or Graduate, Graduate School, Graduate Research Center). Deadline: June 12.
4. Pay tuition and fee bill upon mail request.
5. Confirm registration on June 26, at Boyden Gymnasium.
6. Course changes received prior to June 5 will be processed. If received later, they must be taken care of on Registration Day.
7. Housing assignments are mailed directly to pre-registered students.
8. Secure Dining Commons tickets through Dining Commons representative at Boyden Gymnasium on Registration Day; or see representative at the Central Food Service, Worcester Dining Commons, after Registration Day.
9. All tuition and fee bills must be paid before attending classes.

REGISTRATION DAY — JUNE 26

(At Boyden Gymnasium, or at Registrar's Office after this date.)

1. Review and select courses from this Summer Session Bulletin and from final Schedule of Courses available at Registration.
2. Complete application forms.
3. Have courses approved by department representatives.
4. Pay tuition and fee bills at Cashier's Office.



5. Deliver data processing cards to departments.
6. Complete housing arrangements with Housing Representative at Boyden Gymnasium on Registration Day; or at Housing Office, 235 Whitmore Administration Building, after Registration Day.
7. Complete dining arrangements, if desired, with representative at Boyden Gymnasium; or, after this date, at Worcester Dining Commons.

COURSE CHANGES

(At Boyden Gymnasium on Registration Day, or at Registrar's Office or Graduate School after Registration Day.)

1. Review and select courses from this Summer Session Bulletin and from final Schedule of Courses to be published in June.
2. Complete course add-drop form.
3. Secure departmental approval and have Registrar's Office review.
4. Pay any remaining bill at Cashier's Office.
5. Deliver data processing cards to departments.

Directory of Courses

INFORMATION FOR COURSE SELECTION — PLEASE READ CAREFULLY

The following course descriptions, in conjunction with any changes in the final Schedule of Courses to be printed just prior to Registration, include all of the information needed to select a schedule of courses.

Numbers preceding the course titles conform to the following outline:

- 000-099 Non-credit courses, non-quality point courses, entrance deficiencies
- 100-199 Undergraduate credit only—Lower Division
- 200-399 Undergraduate credit only—Upper Division
- 399 Honors Work
- 400-499 Professional courses which presume a bachelor's degree
- 500-699 Graduate credit only; courses corresponding to 200-399 series
- 700-999 Graduate level courses

Two numbers preceding a course title designate a course offered for both undergraduate and graduate credit. The student must sign for either graduate or undergraduate credit—not both.

All courses are for three credits unless otherwise indicated. In cases of specifically arranged hours, the student and instructor must agree on the number of credits to be earned. The student must indicate the desired number of credits on the application.

All undergraduate courses given under the supervision of the School of Education are graded on a Pass/Fail basis only.

Unless indicated, there are no prerequisites. Each class is 60 minutes in duration, unless otherwise specified.

Any of the following courses are subject to withdrawal if there is insufficient registration.

Inquiries concerning information not included in this Bulletin should be addressed to:

Summer Session
Office of the Provost
Whitmore Administration Building
University of Massachusetts
Amherst, Mass. 01002

ACCOUNTING

110. INTRODUCTION TO COMPUTERS FOR BUSINESS.

The BASIC and FORTRAN computer programming languages. Emphasis on use of the computer for business data processing and problem solving.

7:45 a.m.

120. INTRODUCTION TO FINANCIAL ACCOUNTING.

Introduction to principles underlying the preparation of financial statements.

10:15 a.m.

130. INTRODUCTION TO MANAGERIAL ACCOUNTING.

Continuation of 120. Emphasis on development and application of accounting data for planning and control.

10:15 a.m.

220. FINANCIAL REPORTING I.

Intensive examination of fundamental concepts underlying financial reporting. Current literature dealing with effects of alternative methods upon measurement of periodic income.

9 a.m.

221. FINANCIAL REPORTING II.

Continuation of 220 and an introduction to consolidated financial statements of affiliated companies.

10:15 a.m.

380/680. C.P.A. PROBLEMS.

Extensive practice in solution of problems for C.P.A. examinations. Topics include: proper treatment of assets, liabilities and ownership equity; partnerships; consolidations; funds and cash flow; cost accounting and management uses of accounting information; and governmental accounting.

TuTh, 7-10 p.m., July 11-Aug. 17.

385. C.P.A. PREPARATION.

Accounting practice, auditing, commercial law and theory of accounts, in preparation for certification. Areas may be elected independently.

Credit, 1-3.

Sec. 1, MW 7-10 p.m., May 29-June 16; Sec. 2, 7-10 p.m., June 26, 28, July 5, 7; Sec. 3, MW 7-10 p.m., June 12-23.

ANTHROPOLOGY AND ARCHEOLOGY

104. INTRODUCTION TO CULTURAL ANTHROPOLOGY.

Social and cultural anthropology dealing with variations among societies in technology and economics, social and political organization, art, religion, and ideology.

9 a.m.

377/677. SUMMER FIELD SCHOOL.

Practical experience and training in archeology. A colonial site will be excavated and instruction given in archeological methods and techniques. Prerequisite, Anthropology 102 or equivalent, or permission of instructor. Schedule to be arranged.

ART

100. BASIC DRAWING.

Drawing in black and white, applying pencil, crayon, charcoal techniques to representation in line and tone, emphasizing sound observation and effective presentation.

Sec. 1, 7:45-10 a.m.; Sec. 2, 10:15 a.m.-12:30 p.m.

115. INTRODUCTION TO ART.

An introduction to great works of art studied in historical sequence, including techniques and aesthetic principles.

10:15 a.m.

120. BASIC DESIGN I.

Two-dimensional design concepts arising out of work with specific problems in a variety of media. 6 studio hours.

7:45-10 a.m.

122. BASIC DESIGN II.

Continuation of Art 120. Specific 3-dimensional problems stressing the inter-relationship of materials, processes, techniques, and sculptural concepts. Prerequisite, Art 120. 6 studio hours.

2:15-4:30 p.m.

220/520. PAINTING I.

Easel painting in oil and related media, based on elementary understanding of physical properties of medium, and encouraging individual directions within limitations of sound composition. Prerequisites, Art 100, 120. 6 studio hours.

Sec. 1, 7:45-10 a.m.; Sec. 2, 2:15-4:30 p.m.

224/524. PAINTING III.

Continuation of Art 220. Prerequisite, Art 220. 6 studio hours.

7:45-10 a.m.

230/530. ADVANCED DRAWING.

Investigation and development of various techniques and media with special emphasis on figure drawing. Prerequisites, Art 100, 102. 6 studio hours.

10:15 a.m.-12:30 p.m.

295/595. AMERICAN ART.

The earliest Colonial art and architecture, the impact of later European influences, regional art of the late 19th and 20th centuries, and contemporary techniques.

1 p.m.

385, 386. SPECIAL PROBLEMS.

(also 700-705).

ASTRONOMY

100. EXPLORATION OF THE UNIVERSE.

The earth, its structure and age, the moon, the sun, other planets, and the origin of the solar system. Stars and galaxies, their birth and death. The universe, its structure and evolution. Supplemented by hours of evening observation.

9 a.m.; Lab: Tu 9-10:30 p.m.; or W 9-10:30 p.m.; or Th, 9-10:30 p.m.

BOTANY

101. GENERAL BOTANY.

An introduction to basic biological principles of organization, development and evolution, using botanical illustrations. The foundations and approach in biological research, and the consequence of this research on human thought and experience. Not open to science majors without permission of major department. 2 class hours, 1 demonstration-discussion hour.

9 a.m.

700. SPECIAL PROBLEMS.

By arrangement.

800. MASTER'S THESIS.

By arrangement.

900. DOCTORAL DISSERTATION.

By arrangement.

BUSINESS ADMINISTRATION (GRADUATE COURSES)

457. QUANTITATIVE METHODS II.

Laws and theories of probability and statistics, with applications in business and economics. Topics include probability models, sampling distribution, estimation, hypothesis testing, and decision theory.

9 a.m.

700. PROBLEMS IN BUSINESS ADMINISTRATION.

Independent study and research on selected problems in Business Administration. Permission of instructor and dean required.

Credit, 3-6 each semester. (By arrangement only.)

Sec. 1, By arrangement, Sec. 2, 7-10 p.m., Sec. 3, 7-10 p.m., June 26, 28, July 5, 7; Sec. 4, MW, 7-10 p.m., June 13-23.

722. MARKETING MANAGEMENT.

Marketing concepts of planning, organization, control and decision-making from viewpoint of business executive. Tools available for analysis and control of marketing activities are stressed.

7:45 a.m.

742. OPERATIONS MANAGEMENT.

Analysis of production problems and solution techniques applicable in industrial analysis.

1 p.m.

752. BUSINESS POLICY.

Capstone course requiring application of knowledge, theories, and techniques derived from previous courses, using integrative cases and empirical observations to formulate improved policies and plans.

9 a.m.

756. QUANTITATIVE METHODS III.

Statistical methods employed in collection, analysis, and interpretation of data. Business applications of sampling, analysis of variance, experimental design, regression analysis, and forecasting models.

7:45 a.m.

799. SEMINAR IN BUSINESS ADMINISTRATION.

The relationship of business and management to the environment in which they operate.

Sec. 1, 2:15 p.m.

808. ADVANCED TOPICS IN BUSINESS ADMINISTRATION.

A section is available in each general or functional field of study, to facilitate investigation of current literature and research effort in these areas.

Credit, 3-6.

By arrangement.

810. TUTORIAL STUDY IN BUSINESS ADMINISTRATION.

Individualized secondary or applied research in special areas of guided doctoral level investigation, permissible with consent of mentor when a suitable course in such areas is not available and the studies are related to the career-goal of the scholar.

By arrangement.

Credit, 3-6.

CHEMICAL ENGINEERING

125. FUNDAMENTALS.

Nature and scope of chemical engineering; selected chemical processes; material and energy balances. Prerequisite, Chem. 112 or 114.

9 a.m.

126. THERMODYNAMICS.

Fundamental principles. The First and Second laws; properties of single-component systems, thermodynamic cycles, phase and chemical equilibria. Solution methods for complex energy and material balance problems. Prerequisites, Chem. 160, Math. 173, ChE. 125.

10:15 a.m.

CHEMISTRY

110. GENERAL CHEMISTRY.

Fundamental chemical laws and theories. Meets minimum prerequisite requirements of Chem. 160 and Biochem. 120 or 220.

2 class hours, 1 quiz hour, 1 2-hour laboratory period.

9 a.m.; Lab TuTh, 1-3:15 p.m.

111. GENERAL CHEMISTRY.

The fundamental chemical laws and theories, with the object of giving the student a sound scientific training through a course in chemistry. For engineers and other students planning to take advanced courses in chemistry. 2 class hours. 1 quiz hour, 1 2-hour laboratory period.

7:45 a.m.; 10:15 a.m.; 11:30 a.m.; Lab TuTh, 1-3:15 p.m. or MW, 1-3:15 p.m.

262/562. ORGANIC CHEMISTRY FOR NON-MAJORS.

Introduction to the chemistry of carbon compounds. Survey of the principal classes of organic compounds and their reactions with emphasis on the relation between structure and reactivity. Prerequisite, Chemistry 112 or 114. Concurrent enrollment in Chemistry 264/564 is required.

9 a.m.

264/564. ORGANIC LAB FOR NON-MAJORS.

Application of the experimental techniques of organic chemistry to the preparation, purification and analysis of organic compounds. Prerequisite, concurrent enrollment in Chemistry 262/562.

Credit, 1.

TuTh, 1-4:30 p.m.

CIVIL ENGINEERING

101. SURVEYING.

Theory of surveying. Use, care and maintenance of tape, transit, and level; traverse computation; topographic surveying and mapping; property surveying. Prerequisite: trigonometry. 2 class hours, 1 3-hour laboratory period.

MWF, 1 p.m.; Lab: TuTh, 1-5 p.m.

140. STATICS.

Force systems, friction, first and second moments. Prerequisite, Integral Calculus concurrently.

9 a.m.

141. STRENGTH OF MATERIALS I.

Simple and combined stresses and strains in tension, compression and shear; torsion; stresses and deflections in beams. Prerequisite, Statics.

10:15 a.m.

142. DYNAMICS.

Motions of particles and rigid bodies and the force systems associated with these motions. Prerequisite, Statics.

7:45 a.m.

257. ELEMENTARY FLUID MECHANICS.

Fundamentals of fluid mechanics including fluid properties, fluid behavior under static and dynamic conditions, and development of basic fluid flow equations. Prerequisite, Statics.

7:45 a.m.

385. SPECIAL PROBLEMS.

Individual study of a selected problem for qualified students. By arrangement with members of the department.

By arrangement.

COMPARATIVE LITERATURE

203. THE EUROPEAN NOVEL: MAN VERSUS SOCIETY.

In English translation, a number of French, Spanish, German, Russian and English novels of the 17th to 20th centuries, in the context of the consciousness they reflect, describe, and transcend.

COMPUTER SCIENCE

122/409. FORTRAN IV.

An extension of basic FORTRAN to include logical unit input/output, logical arithmetic declaratives, sub-programming techniques, systems and library routines and supervisory control cards. Prerequisite, C.S. 121 or equivalent.

10:15 a.m.

223/523. MACHINE AND ASSEMBLY LANGUAGE.

A description with substantial examples and exercises of the structure of a large-scale computer; its operating systems and languages, leading to studies of assembly and macro language capabilities.

9 a.m.

700. SPECIAL PROBLEMS.

By arrangement.

701. SPECIAL PROBLEMS.

By arrangement.

790. SEMINAR.

By arrangement.

ECONOMICS

125. ELEMENTS OF ECONOMICS.

Basic principles which govern the behavior of the American economy. Emphasis on the macroeconomic issues of full employment, price stability and economic growth.

9 a.m.

126. PROBLEMS OF THE NATIONAL ECONOMY.

Introductory analysis of resource allocation and income distribution in the American economy. Problems of international trade, underdeveloped nations, and the Soviet economy.

11:30 a.m.

201/501. INTERMEDIATE MICROECONOMIC THEORY.

Microeconomic analysis of consumers, firms, industries, and markets; rational decision making under conditions of certainty; balancing forces in a free enterprise economy.

9 a.m.

214/514. MACROECONOMIC THEORY AND BUSINESS CYCLES.

Formulation and empirical testing of static and dynamic theories of aggregative income, employment, and prices with special reference to the business cycle, growth, and economic forecasting.

1 p.m.

EDUCATION

For information about the School of Education's Summer Program, including a variety of workshops, additional In-Service Teaching Improvement Programs, and the latest course offerings, please write or call:

Dean for Academic Affairs (545-0237)

Attn.: Summer Session Information

School of Education

University of Massachusetts

Amherst, Massachusetts 01002

In-Service Teacher Improvement Programs

705, Sec. 4—SEMINAR IN EDUCATION: PRACTICAL PROBLEMS IN ARTS EDUCATION.

New methods in making use of the arts for in-service teachers. The survey and examination of arts resources for use in schools; instructional materials and techniques, aesthetic experiences in and out of the classroom, and multi-arts approaches to education. Previous training in the arts is not a prerequisite. *Credit, 6.*

10:15 a.m.-12:15 p.m.

BILINGUAL/BICULTURAL EDUCATION PROGRAM—The School of Education, in conjunction with the Department of Hispanic Languages and Literatures is planning a varied and intense Summer Program in Bilingual/Bicultural Education. Please write to the School of Education or the Hispanic Department for further information.

Center for the Study of Aesthetics in Education

227/527. CURRICULUM INNOVATIONS IN MUSIC AND SOUND IN EDUCATION.

A survey of methods, materials, techniques, and problems re-

lated to the innovative use of music and sound in the classroom as an aesthetic medium for enhancing learning of all kinds. Encourages development and experimental application of innovations.

11:30 a.m.

E03/686, Sec. 3. SPECIAL PROBLEMS: THE ROLE OF THEATRE ARTS IN THE CLASSROOM OF THE ELEMENTARY AND SECONDARY SCHOOL.

Survey of materials, methods, and techniques in teaching theatre arts (drama, movement, mime, oral interpretation) in public schools. Experimentation with new approaches to creative activities dealing with motivation, sense perception, and freedom of speech and movement.

TuTh. 2:15-3:45 p.m.

705, Sec. 4—SEMINAR IN EDUCATION: PRACTICAL PROBLEMS IN ARTS EDUCATION.

(See In-Service Teacher Improvement Programs, above.)

Center for Educational Research

E21/686, Sec. 21. SPECIAL PROBLEMS IN EDUCATION: INTRODUCTION TO RESEARCH FOR NON-MAJORS.

An introduction to conclusion-oriented research and critical skills in the utilization of existing research. Topics include conclusion-oriented research models; classifications of research models, threats to internal and external validity; relationship between design and analysis; basic concepts of descriptive and inferential statistics; an overview of research, development and dissemination; the utilization of existing research.

10:15 a.m.

E24/686, Sec. 24. SPECIAL PROBLEMS IN EDUCATION: COMPUTER LABORATORY WITH EDUCATION STATISTICS APPLICATIONS.

Basic skills in using the computer for the analysis of data collected during research in the social sciences. Terminal use APL, including library programs, key punch, other punched card machines. Batch processing and data management. Concurrent registration in 355/655 recommended.

Credit, 2.

MWF, 10:15 a.m.-12 noon.

355/655. EDUCATIONAL STATISTICS I.

Measurement and notation, tabulation and percentiles, central tendency, variability, normal distribution, measures of relationships, prediction, estimation, hypothesis testing, selected inferential techniques. Concurrent registration in E24/686 recommended.

9 a.m.

833. SEMINAR ON KNOWLEDGE DIFFUSION AND UTILIZATION.

Efforts to diffuse and utilize research in agriculture, medicine, the military, the social sciences, and the world of commerce. Parallels between patterns in these fields and the field of education.

11:30 a.m.

Center for Foundations of Education

250/550. CONCEPTIONS OF LIBERAL EDUCATION.

Traditional and modern concepts of liberal education examined for relevance to contemporary liberal education.

9 a.m.

251/551, Sec. 3. **FOUNDATIONS OF EDUCATION.**

A study of selected problems and issues in modern education such as educational aims, societal expectations of the schools, church-state relations, professionalism, academic freedom, curriculum and methodological emphasis, urban education and educational innovation. Students will elect to study these problems through one of the following disciplines: educational sociology, educational history, educational philosophy, comparative education, or social psychology. They will also have the option of studying them independently or through field experience. Fulfills "Foundations" requirement for those students seeking Teacher Certification.

Sec. 1, 10:15 a.m.; Sec. 2, 9 a.m.; Sec. 3, 10:15 a.m.

Center for Higher Education

E20/686, Sec. 20. **SPECIAL PROBLEMS: AMERICAN HIGHER EDUCATION: ITS STATUS AND ITS FUTURE.**

The current status of higher education in America; developments since World War II; the future in terms of the society's and individual's needs and possible directions higher education will take.

9 a.m.

E30/686, Sec. 30. **EDUCATION, LAW, AND PUBLIC POLICY.**

This course will examine the relevance of law as a tool to maintain, restrict, or effect change in social conditions, especially as this process relates to educational institutions.

Center for Human Potential

E10/686, Sec. 10. **SPECIAL PROBLEMS: PRESCHOOLS FOR BLACK CHILDREN.**

What kinds of teachers, curricula, and classroom structures are most appropriate for Black children. How the preschool can be used to reflect and support the Black community.

TuTh, 2:15-3:45 p.m.

Center for Human Relations

E27/686, Sec. 27. **SPECIAL PROBLEMS: SEMINAR IN ELEMENTARY SCHOOL COUNSELING.**

Development of role and rationale for the elementary school counselor. Counselor's role as a change agent in the school environment. Themes and techniques for working with children.

10:15 a.m.

277/577. **PRINCIPLES OF SCHOOL GUIDANCE.**

The need for and role of the school guidance counselor. An in-depth look at an individual group organizational dimension that relates to an effective agent of social change.

TuTh, 11:30 a.m.-2 p.m.

910. **SCHOOL COUNSELING THEORIES.**

Counseling theory and research evaluation. Methodology, philosophies, ethics, problems, and issues of school counseling.

11:30 a.m.

915. **GROUP ACTIVITIES.**

A laboratory in personal and group development. T-Group sessions provide opportunity for each participant to: 1) develop a greater insight into himself, his personal value system, and his impact on others; 2) increase his sensitivity to the feelings of others and his understanding of how the behavior of others affects him; 3) examine and experience the forces that operate

in a group as well as the individual's own effectiveness in assuming roles needed to build and maintain a group; and 4) relate the small group experiences to the process of change, motivation, leadership, organization, and larger social systems. Outside reading, theory and skill sessions in class, and observation of other groups.

2 sections, by arrangement. First class meets 4:00 p.m., June 26. The classes meet continuously everyday for 7 days.

Center for Humanistic Education

222. **EDUCATION OF THE SELF.**

Each student's personal sense of identity. Exercises, techniques and procedures to provide a structured and productive experience in working with emotions and behaviors. By permission.

TuTh, 7:45-9:15 p.m.

Center for Leadership and Administration

950. **FUNDAMENTALS OF EDUCATIONAL ADMINISTRATION.**

General school administration. The relation of public education to the cultural pattern, organization and practices in school administration. A simulation of an urban high school principalship using Monroe City materials developed by UCEA.

MW 7:45-10 a.m., F, 7:45 a.m.

Center for Media

362/662. **WORKSHOP IN EDUCATIONAL TV.**

A hands-on workshop. Aims to familiarize teachers and teacher interns with hardware of television. Use of television experimentally to solve educational problems. By permission.

9 a.m.

Center for Teacher Education

E13/686, Sec. 13. **SPECIAL PROBLEMS: UNDERSTANDING THE MICRO-TEACHING CONCEPT.**

Historical perspective of the micro-teaching concept; operation of a microteaching clinic and equipment; and development of individual action programs (mini-clinics, demonstrations, etc.).

10:15 a.m.

E40/686, Sec. 40. **SPECIAL PROBLEMS IN EDUCATION: METHODS OF CLASSROOM TEACHING (ELEMENTARY).**

Students may elect modules in methods of teaching science, social studies, and math at the elementary level. *Credit, 1-3.*

E29/686. **PRINCIPLES AND METHODS OF TEACHING READING AND LANGUAGE ARTS IN THE ELEMENTARY SCHOOLS.**

Approaches to the teaching of reading and language arts in the elementary schools. Innovations in methods and materials demonstrated and discussed.

By arrangement.

264/564. **PRINCIPLES OF ELEMENTARY EDUCATION.**

The aim, organization, program and pupil population of the elementary school. Conventional practice clarified and viewed in terms of various perceived alternatives.

10:15 a.m.

285/585. **STUDENT TEACHING.**

Involves a 16-week field experience under the tutelage of a cooperating teacher and University supervisor in an approved school system. By arrangement and permission. *Credit, 1-15.*

309/609. **PRINCIPLES AND METHODS OF TEACHING SECONDARY ENGLISH.**

An analysis of purposes, problems, issues, methods and materials in the teaching of English at the secondary level. Discussion, lectures, case studies, projects.

By arrangement.

310/610. **PRINCIPLES AND METHODS OF TEACHING SECONDARY SOCIAL STUDIES.**

Developing a rationale for secondary school social studies instruction; selection and use of content and method in the classroom situation.

7:45 a.m.

311. **PRINCIPLES AND METHODS OF TEACHING SECONDARY MATHEMATICS.**

The nature and content of mathematics, learning strategies, and values of self and society. Formulation of a philosophy and rationale for education in mathematics.

10:15 a.m.

312/612. **PRINCIPLES AND METHODS OF TEACHING SECONDARY SCIENCE**

Nature and content of science, learning strategies and values of self and society. Formulation of a philosophy and rationale for education in science.

7:45 a.m.

705, Sec. 5. **SEMINAR IN EDUCATION: DEVELOPING CURRICULUM IN THE INTEGRATED DAY CLASSROOM.**

This seminar is designed for teachers and administrators who are committed to the Integrated Day Approach in the classroom. Participants will explore the Integrated Day through the Literature, films and discussions. Workshops will develop out of the needs of the seminar participants and will include such foci as demonstrations, organization of planning strategies, the ecology of the classroom and management skills. Participants will synthesize various areas of the curriculum into projects and learning centers for later transfer and application in their schools. Provisions will be made for developing competency in microteaching, strength training and peer supervision.

710, Sec. 1. **SEMINAR IN MATHEMATICS EDUCATION.**

A seminar focusing on recent developments in elementary mathematics education including the active learning approach, the Integrated Day Approach, and the use of physical materials and the environment.

768. **DEVELOPMENTS IN TEACHING ELEMENTARY SCHOOL SCIENCE.**

New developments in elementary school science curriculum and teaching methodology. Recent research in the field and practical application. By permission

11:30 a.m.-1:30 p.m.

812. **NEW DEVELOPMENTS IN SECONDARY SCHOOL ENGLISH.**

Center for Urban Education

268/568, Sec. 1. **CURRICULUM DEVELOPMENT IN URBAN EDUCATION.**

The current curriculum, its effects on children, and its weaknesses. Development of techniques used to relate curriculum to children of alternatives to the present curriculum, and of ma-

terial relevant to urban children. A post-internship experience.
9 a.m.

313/613. **INTRODUCTION TO URBAN EDUCATION.**
Survey of urban and suburban schools; the process of learning in urban classrooms, effects of the present curriculum and various innovative techniques as they apply to urban schools.
9 a.m.

Non-Center

317/617. **INTRODUCTION TO COMPUTER PROGRAMMING IN APL.**

Introductory exposure to APL (A Programming Language); emphasis on instructional computer applications. Lecture-discussion-workshop format supplemented with laboratory experience using the University's time-sharing computer system. For final emphasis students may elect a) advanced APL programming techniques or b) "Teaching Children Thinking"—Individual tutoring of elementary school children.
TuTh, 7:45-10:15 p.m.

E12/686, Sec. 12. **SPECIAL PROBLEMS: IMPACT OF T.V. ON CHILDREN.**

The condition of children's T.V., both on commercial and educational television; effect of television on children; its effect as a teacher or a brainwasher; how it affects formal education; how to improve children's T.V.; how it can be used by schools to improve the quality of education.
10:15 a.m.

Credit, 1-3.

Individualized Study

385/685. **PRACTICUM IN EDUCATION.**

By arrangement.

Credit, 1-6.

391/702. **INDEPENDENT STUDY.**

By arrangement.

Credit, 1-6.

900. **DOCTORAL DISSERTATION.**

By arrangement.

Credit, 1-12.

These three courses are negotiated between professor and student. Individualized Study Contracts must be completed and filed in Room 121 of the School of Education.

Occupational Education Program

686, Sec. 18. **SPECIAL PROBLEMS: OCCUPATIONAL EDUCATION FROM AN INTERDISCIPLINARY PERSPECTIVE.**

Formulation of a comprehensive educational model; the function of occupational education as presently conceived; what occupational educators ought to be doing that we are not, and what we are doing that we ought not. Related concepts of psychology, ethics, philosophy, economics, avocations, alienation, poverty and racism. By permission.
1 p.m.

E19/686, Sec. 19. **SPECIAL PROBLEMS: CERTIFICATION COURSE FOR ADULT BASIC EDUCATION TEACHERS.**

Aims at certification as an Adult Basic Education Teacher. Concentrates on philosophy, psychology, and methodology of the adult student with emphasis on teacher preparation. Roughly follows the course outline as determined by the Massachusetts Department of Education Bureau of Adult Education and Extended Services.

11:30 a.m.

Reading Program

709. SEMINAR IN READING.

The nature of reading explored in light of its relevance to the Integrated Day Approach. By permission.

11:30 a.m.-1:30 p.m.

ELECTRICAL ENGINEERING

385. SPECIAL PROBLEMS.

Individual study of a selected problem for qualified students.

By arrangement with members of the department.

ENGINEERING

104. INTRODUCTION TO ENGINEERING B.

The nature of engineering practice, through lectures and problem work. Some generally useful concepts to be developed in more detail in later courses. 3 2-hour lecture, problem, or laboratory periods.

10:15 a.m.

ENGLISH

125. MASTERPIECES OF WESTERN LITERATURE.

Selected masterpieces, from Homer and the Bible to James Joyce or Robert Frost. Aims to enrich the student's appreciation of literary values and develop his understanding of abiding human issues. Prerequisite, English 112 or 113.

7:45 a.m.

141. MAN AND WOMAN IN LITERATURE.

Study in literature of the relationship between man and woman. Topics might include the nature of love, the image of the hero and the heroine, definitions—past and present—of the masculine and the feminine. Readings might include works by Lawrence, Freud, Shakespeare, Cummings, Homer, the Brontës.

9 a.m.

233. SEVENTEENTH CENTURY ENGLISH LITERATURE.

Selections from the poetry and prose of the late Renaissance in England, including works by such authors as Donne, Jonson, Browne, Burton, Marvell, and Milton. Emphasis on the challenge of the new science to the traditional humanism.

2:15 p.m.

262. THE MODERN NOVEL: 1930-1960.

Analysis of some twelve novels. A continuation of English 261, but may be elected independently.

3:30 p.m.

267. CONTEMPORARY POETRY

Poetry in English since 1945.

9 a.m.

700. SPECIAL PROBLEMS.

By arrangement.

703. MIDDLE ENGLISH.

The language and documents representing the chief dialects.

10:15 a.m.

800. SEMINAR.

Topic to be announced.

By arrangement.

900. DOCTORAL DISSERTATION.

By arrangement.

ENTOMOLOGY

126. GENERAL ENTOMOLOGY.

A survey of the field; structure, development, evolution, classification, biology, and natural control of insects. Formation of an insect collection.

MWF, 9-10:15 a.m., Lab MW, 1-4:30 p.m.

FORESTRY AND WILDLIFE MANAGEMENT

225/525. THE ELEMENTS OF FOREST MENSURATION.

The measurement of trees, stands, and forest products; field-office practice in timber estimating and log scaling; collection and compilation of forest inventory data. 3 40-hour weeks.

8 a.m.-5 p.m., May 30-June 16.

FRENCH

123. INTENSIVE REVIEW OF FRENCH.

For those who are not ready for a 3rd semester of work.

130. INTERMEDIATE FRENCH: FRENCH LIFE AND CULTURE.

Intensive review and study. Readings in modern French literature. Sequence: French 130, 140. Prerequisite, French 120 or equivalent.

Sec. 1, 9 a.m.; Sec. 2, 11:30 a.m.

144. INTERMEDIATE FRENCH: FRENCH LIFE AND CULTURE.

Stresses the reading of contemporary fiction.

364/664. FOREIGN LANGUAGE RESEARCH.

Course with focus on research studies conducted in foreign language education in the past 20 years, as well as on issues and ideas germane to present language teaching practices.

9 a.m.

410. FRENCH GRADUATE READING.

Emphasizes skill in reading. It prepares students from other departments who wish to offer French in satisfaction of the "competence in a foreign language" requirement.

9 a.m.

GENERAL BUSINESS AND FINANCE

201. CORPORATION FINANCE.

Corporate financial behavior; appraisal of factors affecting decision-making regarding sources and application of funds; introduction to capital budgeting and cost of capital problem. Prerequisite, Accounting 125, or permission of instructor.

1 p.m.

260. LAW I.

Nature of law and judicial process; the concept of contract; economic functions and consequences of contracts.

10:15 a.m.

262/562. LAW III.

The nature, functions and limitations of Commercial Law. Prerequisite, G.B. 260.

9 a.m.

265/565. BUSINESS AND ITS ENVIRONMENT.

Theories and doctrines relating the firm to its environment. Aggregate legal, social, political, and economic factors in completing concepts of the role of business in society. Prerequisite, senior standing or permission of instructor. Also listed as Management 265.

1 p.m.

272. SEMINAR IN URBAN REGIONAL STUDIES.

Analysis of the dimensions of urban growth and change; discussion of the reasons behind, and the problems growing out of the economic growth and stagnation of urban areas. Prerequisite, GB 270 or permission of instructor.

GEOGRAPHY

155. INTRODUCTION TO HUMAN GEOGRAPHY.

The spatial attributes of human societies; population, cultural characteristics, settlement, and economic activity. Selected regional case studies. 2 class hours, 1 2-hour laboratory period, and field trips.

9 a.m.

GEOLOGY

101. PHYSICAL GEOLOGY.

The nature and origin of the landscape features of the earth and their underlying rocks and structures, including the work of rivers, waves, and currents, wind, and glaciers; the role of earthquakes, volcanoes, and the processes of mountain-building. 2 class hours, 1 3-hour laboratory period, and field trips.

9 a.m.; Lab, MW 1-5 p.m.

388. SPECIAL PROBLEMS FOR UNDERGRADUATES.

By arrangement.

389. FIELD PROBLEMS.

By arrangement.

700. SPECIAL PROBLEMS.

By arrangement.

800. MASTER'S THESIS.

By arrangement.

900. PH.D. THESIS.

By arrangement.

GERMAN

110. ELEMENTARY GERMAN.

Conversation, reading, grammar and composition. 2 laboratory hours by arrangement.

9 a.m.

120. ELEMENTARY GERMAN II.

Conversation, reading, grammar and composition. 3 class hours, 1 laboratory hour.

1 p.m.

130. INTERMEDIATE GERMAN I.

Reading, conversation, composition. Grammar review. Prerequisite, German 120.

9 a.m.

140. INTERMEDIATE GERMAN II.

For the non-German major who would like to develop a reading ability in German on an intensive level. Readings in modern German literature and intensive review. Prerequisite, German 130 or equivalent.

409. GRADUATE READING COURSE.

Designed for graduate students preparing for their M.A. or Ph.D. reading examination. No previous knowledge of German required.

No credit.

1 p.m.

HISTORY

100. HISTORY OF WESTERN THOUGHT

AND INSTITUTIONS.

The historical development of the western European countries, their ideas, and institutions.

11:30 a.m.

140. PROBLEMS IN EUROPEAN HISTORY 1500-1815.

The historical development of Western European thought and institutions. History majors are strongly urged to take this course before registering for advanced European courses.

9 a.m.

150. THE DEVELOPMENT OF AMERICAN CIVILIZATION TO 1876.

A survey of the American national growth.

9 a.m.

202/502. EARLY MIDDLE AGES 300-1100.

Spread of Christianity; pagan and early Christian culture; Germanic kingship; the Carolingian world; early feudalism; monasticism and ecclesiastical centralization.

10:15 a.m.

215/515. THE HISTORY OF RUSSIA II.

Political, economic, social and intellectual development of Russia. Origins of Russian Marxism and the Soviet period.

11:30 a.m.

332/632. THE SOUTH IN AMERICAN HISTORY.

From early settlement to contemporary regional problems.

11:30 a.m.

769. SEMINAR IN AMERICAN INTELLECTUAL HISTORY SINCE THE CIVIL WAR.

Training in historical research. Prerequisite, permission of instructor.

1 p.m.

INDUSTRIAL ENGINEERING

256/556. DATA PROCESSING AND INFORMATION HANDLING SYSTEMS.

Principles and applications of data processing and electronic computer systems for use by Industrial Engineers as a management tool for control and decision-making. Prerequisite, permission of instructor.

9 a.m.

271/571. BASIC PROBABILITY FOR ENGINEERS.

Probability theory including: sample spaces; discrete and continuous random variables; functions of random variables; marginal and joint probability, density and cumulative distribution functions; and moments. Prerequisite, Math. 124.

7:45 a.m.

ITALIAN

410. GRADUATE READINGS IN ITALIAN.

Emphasizes skill in reading. It prepares students from other departments who wish to offer Italian in satisfaction of the "competence in a foreign language" requirement.

10:15 a.m.

MANAGEMENT

201. PRINCIPLES OF MANAGEMENT.

Fundamental principles and practices of the managerial process in business enterprises.

11:30 a.m.

214. PERSONNEL MANAGEMENT.

Principles and policies followed by management in recruitment, development direction, and control of personnel.

10:15 a.m.

247. PRODUCTION MANAGEMENT I.

Basic principles of production management. Use of statistical, mathematical, and simulation methods in production or operations. Prerequisite, Management 201.

1 p.m.

371. BUSINESS POLICY AND STRATEGY.

An integrating course embracing all organic management functions. Cases are used as subjects for analysis and systematic decision-making practice. Prerequisite, Management 201 and senior standing.

10:15 a.m.

385. INDEPENDENT STUDY.

By arrangement.

391. SEMINAR IN ADMINISTRATION.

Advanced study and individual research in theory practice of administrative organization and behavior. Prerequisite, senior standing and permission of instructor.

11:30 a.m.

MARKETING

201. FUNDAMENTALS OF MARKETING.

The role of Marketing in our economic and social structure. The planning, the distribution, pricing and promotion of goods and services to consumer and industrial markets, viewed as internal activities of the firm, and also as they are shaped by environmental forces.

9 a.m.

210. BUYER BEHAVIOR.

Analysis of buyer motivation and buying behavior, including explanatory theories of consumer market behavior and models of the decision-making process for winning patronage. Prerequisite, Marketing 201 or permission of instructor.

11:30 a.m.

222/522. MARKETING COMMUNICATIONS.

Development of effective marketing communication strategies based upon an understanding of the characteristics of audiences.

9 a.m.

385. INDEPENDENT STUDY.

By arrangement.

MATHEMATICS

100. MATHEMATICS IN THE MODERN WORLD.

A cultural and historical presentation of some mathematical ideas to demonstrate both the scientific and the humanistic value of the subject.

7:45 a.m.

110. ELEMENTARY TECHNIQUES OF MATHEMATICS.

Some basic techniques including sets, logic, numbers, counting,

probability, functions, and graphs. A student cannot receive credit for this course and either of the courses 111 or 112.

7:45 a.m., 9 a.m.

115. ELEMENTARY LINEAR ALGEBRA.

Systems of linear equations. Vector spaces, with emphasis on Euclidean spaces. Linear transformations and matrices. Determinants, Characteristic vectors. Designed as an elective for students in School of Business Administration, Industrial Engineering, Economics. Not for credit after Math. 212.

7:45 a.m.

116. CALCULUS FOR BUSINESS AND SOCIAL SCIENCES I.

Sets, real numbers, inequalities, relations and functions, sequences, series, limits, differentiation and applications.

9 and 10:15 a.m.

117. CALCULUS FOR BUSINESS AND SOCIAL SCIENCES II.

Functions of several variables, maxima and minima, exponential and logarithmic functions, integration, introduction to differential equations. Prerequisite, Math. 116/118.

9 a.m.

130. PRECALCULUS MATHEMATICS.

Functions and graphs; analytic geometry of lines and conic sections; polynomial, exponential, logarithmic, and trigonometric functions. Primarily for students intending to study calculus but needing extensive preparation in the requisite algebra, trigonometry, and analytic geometry.

10:15 a.m.

135. CALCULUS I.

Introduction to differential and integral calculus of functions of a single variable: continuity, derivatives, extrema, curve sketching, the integral, elementary integration techniques. Primarily for students in the sciences. Credit given for only one of the courses 113, 116, 118, 122, 123, 133, 135, 153. Prerequisites, high school algebra, plane geometry, trigonometry, and analytic geometry of lines and conic sections; or Math. 130.

Sec. 1, 7:45 a.m.; Sec. 2, 9:00 a.m.; Sec. 3, 10:15 a.m.; Sec. 4, 11:30 a.m.

136. CALCULUS II.

Continuation of Math 135. Limits, partial derivatives, integration techniques, integrals as limits, improper integrals, theorems of Cauchy and Taylor, infinite series and power series, smooth curves. Credit given for only one of the courses 117, 119, 124, 125, 134, 136, 154. Prerequisite, Math. 135 or Math. 122/123 taken in 1971-1972.

Sec. 1, 10:15 a.m.

165. MULTIVARIABLE CALCULUS.

Functions of several variables, partial derivatives, multiple integrals, theorems of Green, Stokes, and Gauss. Prerequisite, Math 173/183 or Math. 136 or Math. 124/125/134 taken in Spring, 1972.

10:15 a.m.

883. DIRECTED READINGS.

By arrangement.

Statistics

121. ELEMENTARY STATISTICS.

Nature of statistics; description of data; sample distribution; statistical theories and dispersion procedures; regression and cor-

relation, time series. Not open to students who have completed Stat. 315, Psych. 241 or 245, or Soc. 247.

Sec. 1, 9 a.m.

316/616. INTRODUCTION TO THE THEORY OF STATISTICS II.

Interval estimation, hypothesis testing, analysis of variance, regression, correlation, decision theory. Prerequisite, Stat. 315.

11:30 a.m.

MECHANICAL AND AEROSPACE ENGINEERING

144. MECHANICS I (Statics).

A vector treatment of the equilibrium of particles and rigid bodies. Topics include: vector algebra, forces, moments, couples, equations of equilibrium, free-body diagrams, graphical techniques, constraints, structures and mechanisms, friction, centroids and moments of inertia, and the method of virtual work. Prerequisites, Math 124, Physics 161.

9 a.m.

145. MECHANICS II (Strength of Materials).

Notions of stress, strain, and Mohr's circle. Tension shear and torsion. Plane stress and plane strain; moments of inertia. Shear force and bending moment diagrams. Deflection of beams; indeterminate beams, Castigliano's principle; plastic bending of beams. Mechanical properties of materials. Prerequisite, MAE 144.

10:15 a.m.

163. THERMODYNAMICS.

The laws of thermodynamics are introduced and applied to various energy-transforming devices. Property relations. Emphasis on the science of thermodynamics, providing a background for further study in those areas that involve thermodynamic principles. Prerequisites, Physics 162, Math 173.

10:15 a.m.

246. MECHANICS III (Dynamics).

A vector treatment of dynamics. Kinematics of a particle in two and three dimensions. Dynamics of a particle; momentum, moment of momentum, and work energy. Rigid bodies in plane motion; kinematics and dynamics. Relative motion. Prerequisite, MAE 144.

7:45 a.m.

264. THERMODYNAMICS II.

Application of the laws of thermodynamics to energy conversion devices. Introduction to irreversible thermodynamics. Prerequisite, MAE 163.

9 a.m.

265. FLUID MECHANICS. Also CE. 257.

Vector approach to the fundamentals of fluid dynamics, including the topics of fluid statics, kinematics of fluids, potential flow, vorticity, dimensional analysis. Introduction to viscous fluids and compressibility. Prerequisite, MAE 163. Required CE and MAE course.

7:45 a.m.

385. SPECIAL PROBLEMS.

Individual study of a selected problem for qualified students. By arrangement with members of the department.

Credit, 1-3.

MICROBIOLOGY

140. BIOLOGY OF MICROORGANISMS.

General considerations of the microbial world, including history, structure, growth, ecology, physiology, pathogenesis, and microbial genetics. Lectures supplemented with visual aid material.

9 a.m.

MUSIC

120. PIANO CLASS.

Piano class on electronic instruments.

11:30 a.m.

205/505. MUSIC HISTORY—MEDIEVAL AND RENAISSANCE MUSIC.

Chant and Organum through Renaissance motet and madrigal. Reading, listening, score study, analysis.

10:15 a.m.

716. ANALYSIS OF MUSIC LITERATURE. 1890- PRESENT.

Representative compositions from each period. Analysis by score and sound of the various musical forms and media. Offered on a rotation basis of period courses.

11:30 a.m.

742. RESEARCH IN MUSIC EDUCATION.

Individual research projects in selected areas of Music Education.

9 a.m.

NURSING

301. NURSING IN THE COMMUNITY.

Application of basic concepts of public health and public health nursing to the care of individuals, families and community groups. Correlated practicum provides experience in care of selected individuals, families and groups served by official and non-official public health nursing services. Enrollment limited and by permission of instructor. Students must provide transportation. June 12 to July 26.

Credit, 6.

NUTRITION AND FOOD

385/685. HUMAN NUTRITION METHODOLOGY.

Laboratory study of methods of assessing nutritional status and nutrient intake. Prerequisite: NF 352 or equivalent. June 26-July 21. 9 a.m.; Labs daily, 10 a.m.-12 noon, 1-4 p.m.

700. SPECIAL PROBLEMS.

By arrangement.

800. MASTER'S THESIS.

By arrangement.

900. DOCTORAL DISSERTATION.

By arrangement.

PHILOSOPHY

105. INTRODUCTION TO PHILOSOPHY.

An introduction to some of the most important of the general questions, ideas, theories, and methods of inquiry which have given direction to Western thought.

Sec. 1, 10:15 a.m.; Sec. 2, 1:15 p.m.

110. ETHICS.

An examination of classical and contemporary theories concerning policy formation and the justification of personal decisions and ways of life.

3:30 p.m.

125. INTRODUCTION TO LOGIC.

An inquiry into the nature of critical thinking, including the functions of language, the structure of deductive arguments, and a glimpse at inductive methods.

9 a.m.

700. SPECIAL PROBLEMS.

By arrangement.

800. MASTER'S THESIS.

By arrangement.

900. DOCTORAL DISSERTATION.

By arrangement.

PHYSICAL EDUCATION

100. PHYSICAL EDUCATION.

Skills courses in sport, dance, and other forms of physical activity available to all students in the University. *Credit, 1.*

Under P.E. 100, specific courses include:

G 01. INTERMEDIATE SWIMMING.

3:30 p.m.

G 23. MODERN DANCE I.

G 45. BOWLING I.

2:15 p.m.

G 55. GOLF I.

3:30 p.m.

G 58. HANDBALL/SQUASH.

2:15 p.m.

G 60. BEG. EQUITATION I.

Sec. 1, 10:15 a.m.; Sec. 2, 6-7:15 p.m.

G 61. BEG. EQUITATION II.

Sec. 1, 9 a.m.; Sec. 2, 7:15-8:30 p.m.

G 62. INT. EQUITATION I.

Sec. 1, 7:45 p.m.; Sec. 2, 6-7:15 p.m.

G 63. INT. EQUITATION II.

Lab Fee, \$45.; 7:15-8:30 p.m.

G 67. TENNIS I.

Sec. 1, 7:45 a.m.; Sec. 2, 9 a.m.

G 71. YOGA.

9 a.m.

PE/Educ. 285. STUDENT TEACHING.

By arrangement.

Credit varies.

370. ORGANIZATION AND ADMINISTRATION.

10:15 a.m.

662. HISTORY OF SPORT IN THE UNITED STATES.

Sport in America from earliest times to the contemporary period. Emphasis will be placed on the social, political and economic factors which affected the development of sport. Prerequisite, PE 561.

9 a.m.

700. SPECIAL PROBLEMS.

Individual research on a topic not covered by any existing courses. Normally confined to an extension of the content of an

existing course rather than an introduction to a new area of study.

By arrangement.

Credits, 3-9.

772. ATHLETICS: A PHILOSOPHIC INQUIRY.

10:15 a.m.

800. MASTER'S THESIS.

By arrangement.

Credit, 3-9.

Courses in Exercise Science:

352/652. PHYSICAL ACTIVITY AND THE MENTALLY RETARDED.

Examining the motor domain of the trainable and the profoundly mentally retarded child, and to attempt an understanding of the neurophysiological factors underlying some of today's treatment programs. Prerequisite, PE 259 and permission of instructor.

9 a.m.

700. SPECIAL PROBLEMS.

By arrangement.

813. MEASUREMENT THEORY AND HUMAN MOVEMENT RESEARCH.

The theory of the construction of evaluative instruments in human movement with emphasis on a critical examination of existing measurement devices. Prerequisites, PE 274 and 712.

10:15 a.m.

823. EXPERIMENTAL EXERCISE PHYSIOLOGY.

7:45 a.m.

843. NEUROMUSCULAR FATIGUE.

Analysis of fatigue and recovery processes in gross human motor activity. Prerequisites, PE 621, 742, 813, and Stat 551 and 561.

1 p.m.

800. MASTER'S THESIS.

By arrangement.

Credit varies.

900. DOCTORAL DISSERTATION.

By arrangement.

Credit varies.

PHYSICS

141. INTRODUCTORY PHYSICS I.

Mechanics, sound, heat; electricity, magnetism, light and modern physics, using trigonometry and algebra, but not calculus. Intended for pre-medical, pre-dental, pre-veterinary and some science major students. Prerequisites, Math. 121 previously or concurrently.

9 a.m.; Lab MTuW, 10:15 a.m.

Credit, 4.

163. GENERAL PHYSICS III.

Electromagnetic radiation, optics, atomic and nuclear physics. Prerequisites, Math. 136; Physics 162.

9 a.m.; Lab MTuW, 10:15 a.m.

Credit, 4.

POLITICAL SCIENCE

100. AMERICAN POLITICS.

Introduction to constitutional principles and public policy making in American national government. Democratic theory, major national political institutions, electoral behavior, and selected public policy questions.

2:15 p.m.

150. COMPARATIVE POLITICS.

Introduction to political structures, processes, and comparative national development in parliamentary, one-party, and other political systems. The relationship of cultural values to institutions; emphasis on such forces of change as democracy, industrialization, and revolution.

10:15 a.m.

202/502. MODERN POLITICAL THOUGHT.

The development of political thought and its relation to cultural and institutional growth from the rise of the modern state to the present.

2:15 p.m.

240/540. GOVERNMENT AND POLITICS OF SOUTH AMERICA.

A comparative analysis of the interest groups, political parties, and governmental institutions of the South American countries. Emphasis on the background and political culture in which Latin American politics take place.

11:30 a.m.

321/621. THE PRESIDENCY IN AMERICAN GOVERNMENT.

Constitutional and political aspects of the Presidency in legislation, administration, and conduct of foreign and military affairs. The President as party leader. Prerequisite, Pol. Sci. 100 or 160-161.

PSYCHOLOGY

101. ELEMENTARY PSYCHOLOGY.

The basic approaches and concepts of modern psychology. Examples of perception, conditioning, cognitive processes, social behavior, tests and measurements, and personality. The heuristic value of these concepts and approaches in considering some of the problems of society.

11:30 a.m.

141. PSYCHOLOGICAL METHODS.

Introduction to the ways questions about behavior are formulated and then tested through experiments. Lectures and laboratory experiences involving concepts from many areas of psychology are used to expose psychology majors to the procedures utilized in designing, conducting, and reporting experiments. Prerequisite, Psych. 101.

9 a.m.; Lab by arrangement.

145. STATISTICS IN PSYCHOLOGY.

Introduction to statistical principles and techniques as applied to psychological data.

10:15 a.m.

230. MOTIVATION.

Introduction to theories and research on the nature and determinants of motivation. Topics include instinct, behavior and energization concepts, biological and acquired bases of emotions and motives, frustration, conflict and stress. Prerequisite, Psych. 101.

9 a.m.

262. CHILD PSYCHOLOGY.

Psychological development of the child, including language, emotions, intelligence, social behavior, motivation, and personality. Not open to psychology majors. Prerequisite, Psych. 101.

7:45 a.m.

263. PSYCHOLOGY OF ADOLESCENCE.

Consideration of the development, and emotional, social and intellectual adjustment of the individual during the adolescent years. Prerequisite, Psych. 101.

9 a.m.

301. EDUCATIONAL PSYCHOLOGY.

Psychological facts and principles of development, learning, and measurement as applied to educational situations. Prerequisite, Psych. 101.

11:30 a.m.

305. HISTORICAL AND CONTEMPORARY SYSTEMS.

General structure of psychological theory; analysis and comparison of historical systems in the tradition of British empiricism-associationism and Continental rationalism, and of derivative near-contemporary and contemporary mentalistic, functionalistic, and behavioristic systems. Prerequisite, Psych. 101.

7:45 a.m.

871-872. CLINICAL PRACTICUM.

By arrangement.

Credit, 3-12.

PUBLIC HEALTH

123. DYNAMICS OF PERSONAL AND COMMUNITY HEALTH.

Development of understanding and attitudes relative to personal, family and community health needs. Attention given to mental and physical well being, drugs, sexuality, communicable and chronic diseases and health services.

11:30 a.m.

304/604. SCHOOL HEALTH.

Consideration of the principles, concepts, methods, and dynamics of the organization of a school health program at the elementary and secondary level. Stress is placed in the planning and teaching in problem areas, (i.e., sex education, mental health and drugs). Prerequisite, junior or senior standing or permission of instructor.

10:15 a.m.

375/675. PUBLIC HEALTH STATISTICS.

Principles of statistics applied to the evaluation of public health practices.

9 a.m.

385. SPECIAL PROBLEMS.

Individual study of a selected problem for qualified students. By arrangement.

Credit, 1-3.

700. SPECIAL PROBLEMS IN PUBLIC HEALTH.

Special investigational or research problems in public health for advanced students. The scope of the work can be varied to meet specific conditions.

By arrangement.

Credit, 3-6.

782. SUPERVISED FIELD TRAINING (Internship).

For students majoring in public health. Supervised field observation and professional experience in selected public health agencies. Assignments in either associate functions or internship. Departmental staff; consultants in public health agencies. By arrangement.

Credit, 6-12.

800. MASTER'S THESIS.

By arrangement.

Credit, 3-10.

RHETORIC

100. LANGUAGE & WRITING.

How we choose words and styles to express ourselves and our world. Particular attention to the written language. Varied opportunities for written expression, on different subjects, for different purposes and audiences. Short reading assignments, some about language, and frequent short papers. Emphasis on responsible choice in the language we use in both our academic and everyday lives.

Sec. 1, 10:15 a.m.; Sec. 2, 11:30 a.m.; Sec. 3, 1 p.m.; Sec. 4, 2:15 p.m.; Sec. 5, 7:45 a.m.; Sec. 6, 7:45 a.m.; Sec. 7, 9 a.m.; Sec. 8, 10:15 a.m.

110. LANGUAGE AND SPEAKING.

Choosing and managing materials and ideas in speaking situations. Interplay of communication, spoken language, and personal development.

Sec. 1, 9 a.m.; Sec. 2, 10:15 a.m.; Sec. 3, 10:15 a.m.; Sec. 4, 11:30 a.m.; Sec. 5, 1 p.m.

140. VOICES OF IMAGINATIVE WRITING.

Examination of various kinds of verbal imaginative expression in our culture—rock lyrics and modern poems, advertising, short fiction, drama—with a view to helping students become more articulate and critical as readers and more resourceful and daring as writers. Exercises in critical reading or analysis balanced by frequent "creative" writing activities in various genres. By "playing" with language in various ways, the student is led to serious efforts at self-expression and self-definition.

Sec. 1, 11:30 a.m.; Sec. 2, 1 p.m.

145. CRITICISM AND THE THEATRICAL ARTS.

The roles and styles of the critic, using as subject matter the theatrical area (theatre, dance, and film)

10:15 a.m.

SLAVIC LANGUAGES AND LITERATURES

257/557. SOVIET LITERATURE.

SOCIOLOGY

101. INTRODUCTION TO SOCIOLOGY.

The fundamental terminology of sociology and intensive discussion of selected topics from a sociological point of view.

Sec. 1, 7:45 a.m.; Sec. 2, 1:00 p.m.

231. SOCIOLOGY OF AGING.

Aging as a social phenomenon in the United States and Massachusetts with emphasis on the elderly population. Topics include biological, psychological, and social factors in the aging process, the demographic and ecological conditions of aging, the problem of retirement, and public policy and politics as they relate to old age.

9 a.m.

251. URBAN SOCIOLOGY.

A comparative analysis of cities and of urbanization with special reference to demographic characteristics or urban populations, urban ecology, and urban social structure. Prerequisite, Soc. 101.

10:15 a.m.

256. RACE RELATIONS.

The social, economic and political aspects of racial and ethnic

problems in the United States, plus briefer considerations of similar problems in Africa and Asia. Prerequisite, Soc. 101.

11:30 a.m.

278. CRIMINOLOGY.

The nature of crimes and the factors underlying criminal behavior. The machinery of justice; the law, courts, police systems, and correctional institutions.

10:15 a.m.

SPANISH

110,120. ELEMENTARY SPANISH.

For students with no previous creditable training in Spanish. Intensive practice in language skills. To fulfill the language requirement, upon completion of the course most students are required to continue by taking Spanish 130 or 140.

7:45 a.m.

126. ELEMENTARY SPANISH—INTENSIVE.

An intensive elementary course with emphasis on the oral aspect designed to allow completion of Spanish 110 and 120 in one course. Open to all.

9 and 11:30 a.m.

Credit, 6.

130,140. INTERMEDIATE SPANISH.

For upperclassmen who have completed Spanish 110-120, and those freshmen and transfer students who are found qualified by placement examination. Training in language skill, with emphasis on speaking and understanding; readings in cultural and literary texts. Students completing Spanish 140 fulfill the language requirement.

10:15 a.m.

181. ORAL SPANISH.

Oral aspects of the language: pronunciation, vocabulary building, speeches, discussions, debates. Grammatical elements required for correct and fluent use of American and Peninsular Spanish. Prerequisite, Spanish 140 or permission of the department.

9 a.m.

The following courses are tentatively offered as part of the Bilingual-Bicultural Institute being planned in collaboration with the School of Education. Please check registration day for the final course numbers and titles.

3--/6--. ENGLISH AS A SECOND LANGUAGE FOR SPANISH SPEAKERS.

3--/6--. CARIBBEAN LITERATURE.

3--/6--. LANGUAGE AND CULTURE OF SPANISH SPEAKING MINORITY GROUPS.

3--/6--. CULTURAL AND HUMANISTIC AWARENESS.

700. PROBLEM COURSE.

Directed study in some phase of linguistics or literature.

By arrangement.

SPEECH

115. INTRODUCTION TO THEATRE.

A survey of the theatre: its aesthetics, elements, forms, and contributing artists; its influences and place in our culture.

9 a.m.

182. INTRODUCTION TO COMMUNICATION
DISORDERS.

The types and causes of communication disorders; emphasis on speech disorders.

7:45 a.m.

225/525. HISTORY AND DEVELOPMENT OF
MOTION PICTURE.

Evolution of the motion picture as an international art form and social force. Analysis of form, technique and impact of film. Selected screening of representative film styles and content.

MTuW, 1 p.m., Th, 1-3:15 p.m.

288/588. CLINICAL PRACTICE.

Supervised experience in therapy with individuals having articulatory type disorders. May be repeated once. Prerequisites, Speech 181 and 182.

By arrangement.

Credit, 1-3.

289/589. COMMUNICATION PROBLEMS OF DEAF
& HARD OF HEARING.

The physical, psychological, social, and educational problems and needs of the hearing handicapped. Prerequisite, Speech 250/550.

TuTh, 9-11:15 a.m.

390/690, Sec. 1. SEMINAR IN COMMUNICATIONS
DISORDERS.

Behavior modification in Communication Disorders. The habilitation and rehabilitation of speech and language disorders through behavior modification using operant procedures. Prerequisites, Speech 182 and 283/583.

MW, 9-11:15 a.m.

391/691. SEMINAR IN MASS COMMUNICATION.

The media and social reform. Historical and contemporary efforts of mass media in promoting social reform in this country and in reflecting and generating awareness of social reform movements. The independent and combined activities of books, newspapers, film, radio, and television. Judgments of varying degrees of effectiveness of the media.

TuTh, 7-9:30 p.m.

ZOOLOGY

101. INTRODUCTORY ZOOLOGY.

Principles of zoology including cell structure and metabolism, heredity, development, behavior, evolution, ecology, and the anatomy and physiology of the major groups in the animal kingdom. Provides background for understanding current biological problems.

MWF, 9 a.m., Lab TuTh, 1-4 p.m.





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- Astronomy Bldg C4
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- Brett 1st F3
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- Brown 1st E2
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- Campus Center (Murray D. Lincoln) 1 D5
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- Cashin 1st E2
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- Engineering Bldg, East D4
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- Guinness Engineering Bldg C4
- Hamlin 1st D3
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- Hampshire Dining Commons C7
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- Hatch Laboratory C4
- Heller Hall D6
- Hicks Physical Education Bldg D6
- Hills 1st F6
- Holdsworth Hall C4
- Health Center Infirmary F5
- J. Adams 1 D8
- J. Q. Adams 1 D8
- James 1st C7
- Johnson 1st E3
- Kennedy 1st D7
- Knowlton 1st D4
- Leach 1st D3
- Lewis 1st E3
- Library, University D5
- Lincoln Apartments 1 E7
- Lyon, Mary 1st E4
- Machmer Hall D5
- Mahor Auditorium E6
- Maintenance C5
- Mark's Meadow Elementary School D2
- Marshall Hall & Annex E4
- Marston Hall C4
- Mackinnon 1st D8
- McNamara 1st E2
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- Middlesex House D7
- Mills House 1 F5
- Mobile Classrooms C5
- Montague House D2
- Moore 1st C8
- Morrill Science Center E5
- Munson Hall D6
- Munson Hall Annex D6
- Northeast Residence Area E3
- North Village 1 B1
- Observatory E4
- Old Chapel D6
- Old Infirmary Group E4
- Orchard Hill Residential College 1 F4
- Page Laboratory C4
- Patterson 1st D8
- Photo Center C5
- Physical Plant Bldg C5
- Pierpont 1st C8
- Power Plant C5
- Prince 1st D7
- Public Health Center, Western Mass. E5
- Security Building D7
- Shuman Hall E5
- South College D5
- Southwest Residential College 1 D8
- Stadium, Massachusetts Alumni 1 B10
- Stockbridge Hall C4
- Student Union 1 D5
- Thacher 1st E4
- Thayer Animal Disease C4
- Thompson Hall C5
- Thoreau 1st C7
- Tobin Hall D6
- University Apartments 1 F7
- Van Meter 1st F5
- Washington 1st D8
- Webster 1st F4
- West Experiment Station D4
- Wheeler 1st F5
- Whitmore Administration Building D7
- Wildier Hall E5
- Women's Physical Education Bldg D3
- Worcester Dining Commons (North) 1 E4
- Wysocki House D1

1 Buildings that are self-liquidating
* Residences houses

Parking Lots
Traffic Control Points





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